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The Ancient Literature and Modern Life

AN EDITORIAL

THE DECLINE of the classics, the masterpieces of Greek and Roman thought, is one of the most dismal aspects of contemporary education. With the exception of the few students who expect to become teachers of Latin or Greek virtually none of the graduates of the colleges have any acquaintance with the literature of antiquity. And many who study the ancient languages acquire no real knowledge of the classics as works of art and philosophy, for they discontinue their work before reaching the courses in which literature is read.

The decline of the classics can be most dramatically portrayed by comparing the curriculum of a hundred years ago with the course of study today. A century ago the typical freshman in liberal arts would have studied four courses, three in Latin and Greek and a fourth in mathematics. As he advanced in college the proportion of time given to these languages would have declined, but in no year would they have been completely neglected, and more than half of the entire four years would normally have been spent in ancient language and literature. By contrast most colleges now require no instruction in classics, and only a negligible number of students elect such courses, usually not more than one or two per cent. The contrast is further sharpened by the fact that the student of a hundred years ago came to college with a considerable knowledge of the Latin and Greek languages and hence was able to begin the study of literature at once. Today, however, most students do not study the ancient languages in high school and take only a year or two in college. Hence they have little contact with ancient literature. Though there are values in elementary instruction in language, only those who learn to read a foreign literature, can really be said to have gained a large profit from their work.

The neglect of the literature of antiquity is lamentable. These expressions of ancient genius concern the persistent problems of mankind, matters as perplexing today as they were several thousand years ago. The advancement of modern knowledge though it has lightened many of the ordinary burdens of life, has often been a poor substitute for the wisdom of the ancients, the fruit of their reflections on the nature and destiny of man. Current treatises on government, valuable as they may be in the daily management of contemporary affairs, do not provide the insights into human nature and the relations among men found in Aristotle's *Politics* or Plato's *Republic*. The scientific study of the mental and physical deterioration which accompanies old age may provide the basis for a solution to some contemporary medical and social problems. But important as the study of such scientific subjects may be, it is an entirely different intellectual experience from that which the student has in reading and reflecting upon Cicero's *De Senectute*. The point need not be labored. The classical literature contains some of the noblest expression of the human spirit and some of the deepest insights into human nature. It contains the wisdom of men who thought long and steadily about mankind and its problems. Yet only a negligible fraction of those who are graduated from our colleges each year have the slightest acquaintance with this literature.

Why is the study of the classics less popular than it used to be? A principal reason is that Americans place a higher value on other subjects responsible for our material prosperity and comfort. The steady increase in the production of goods resulting from advances in science and technology has impressed the average American, with the consequence that subjects which have an apparent cash reward or other tangible benefit have risen in popularity, while those which seem to give only mental or spiritual satisfaction have proportionately declined. Unfortunately many educators have encouraged this materialistic conception of education by announcing with pride that college graduates have better jobs, larger incomes, and higher social status than their friends with less education. Too little attention has been given to the fact that though we have penetrated many of the secrets of nature, the persistent problems of life go unresolved. Our ineptitude in handling the relationships between individual and individual and between the individual and the state is evidence that in such matters we have not increased greatly in wisdom. To some extent then the present impoverished state of classics departments is a result of forces over which they have little or no control.

But their plight is also their own fault. Like so many other disciplines in the nineteenth century, the classics fell under the spell of German scholarship. From that time to the present, classical scholars have been largely concerned with painstaking analyses of the external aspects of texts. Historical background, the influence of one author on another, linguistic and stylistic characteristics, and other matters extrinsic or only remotely related to the thought of the writer have absorbed the attention of those who, in an earlier day, would have been teaching young men and women the great thoughts of the ancients and their significance in the everyday life of the average human being. Teachers in institutions of higher education, especially those in the universities, became more interested in research in classical literature and in preparing advanced students for the same occupation than in the teaching of undergraduate students whose lives might have been profoundly influenced by an understanding of those works which, because of their philosophic and aesthetic merits, have challenged all manner of men through the ages. Like the Ciceronians of Erasmus' day, the devoteés of the classics became less and less interested in the meaning of these works and more and more in their origin, language, and structure. As Professor Showerman aptly remarked, teachers of the classics knew everything written or said about the *Iliad* but they knew nothing about the *Iliad* itself.

Masterpieces which have survived the test of time in many nations and in many cultures have something to say to human beings of normal intelligence and what they have to say can be understood even by those who do not possess all the esoteric knowledge of the linguist or the literary specialist. Abundant evidence to prove this statement can be found in the experiment of the University of Chicago in recent years, in which both undergraduate students and adults have been reading and discussing classical literature understandingly without all the elaborate preparation of the scholar. Such instruction is effective, however, because teachers know the work well and also have some knowledge of human beings and their basic interests. Such teaching is harder, much harder than reciting the critical comments of scholars who have laboriously analyzed a text from the point of view of the poet, linguist, historiographer, or semanticist. The purposes of these two types of instruction, each meritorious in its own place, are entirely different and the teaching qualifications required are likewise different.

Another reason for the decline of the classics is the insistence by most classicists that these works be studied in the language in which they are written, or not studied at all. Teachers of all foreign languages and literatures have made a fetish of reading in the original. Now no one who can think in more than one language would deny that reading *The Republic* in Greek, *De Rerum Natura* in Latin, *Faust* in German, or the *Analects* in Chinese, is quite a different experience from

reading these works in English translations. It must be admitted that precision of translation will not prevent the losses in aesthetic value or in meaning which occur because the emotional content and the cultural coloration of words are different in different languages. Yet, thoughts that are great when expressed in Latin or German, will not become completely dull and uninspired when translated into English or any other language.

Some courses have been offered in English translation, but often apologetically and usually without genuine enthusiasm. The attitude of some classicists toward such instruction is revealed by one who, when asked whether he thought ancient literature could be taught in English with profit to the average college student, answered the question in the affirmative. When asked then why he did not offer such courses in his own institution and advocate their inauguration elsewhere, he remarked that anyone who took such a position ran the risk of professional suicide and at best the opprobrium of his colleagues generally. A member of the faculty in the English department hearing of this conversation pointedly remarked, "apparently if the classics are to be saved for the modern college student, it must be done by someone other than the classicists."

The study of all humanistic subjects is of such crucial significance today when discriminating judgments must be made concerning ethical values and the future of mankind that something drastic must be done to revive the study of classical literature. Any steps in this direction will necessarily proceed from a realistic understanding of the type of education students are receiving in the secondary schools, the intellectual and other interests of young people, and departmental covetousness for the time of students. It is a fact that few students come to institutions of higher education today with a reading knowledge of either Latin or Greek. Even those who have had the advantage of two or three years of study in one of these languages are not prepared to read Plato or Aeschylus or Horace or Cicero or Seneca with understanding. The present college curriculum being what it is, it is also unlikely that more than a small number of college students will wish to, or be able to, learn Latin or Greek sufficiently well to read the literature in these languages. Pleasant or unpleasant then the only inference that can logically be drawn from these facts is that if any large number of college students are to become acquainted with ancient literature it must be through the study of English translations. And if such courses are to be offered they should be taught by members of classics departments. Scattered instruction of this type is now available in departments of philosophy, English, and modern foreign languages. Though much of this instruction is offered by thoroughly competent persons who understand the works in their original form and can therefore interpret them to students, teachers of Latin and Greek would be better equipped to teach such courses.

Whether the classics departments in our colleges and universities can ever regain the prominent position they occupied some decades ago is doubtful. Indeed it is a question if they should, even if instruction in the classical languages and literature is basically altered. That they should be more prominently represented in the curriculum of the average college students, however, few thoughtful persons would deny. Many teachers of the social and the natural sciences are as distressed about the present inconspicuous position of the classics as are those who teach these subjects. But before requiring or urging the average college student to study classical languages and literature, those in other fields want to be assured that the teaching of such subjects will bring the student into direct contact with the provocative ideas, the insights, and the generalizations concerning human nature found in the classics, and not with linguistic, stylistic, and historiographic analyses, activities which, however appropriate in the graduate school, are totally unsuited to the needs of undergraduates.

A concrete example of the difficulty which a classicist has in perceiving the purpose which the

average undergraduate may have in studying a classical text, exhibited itself recently when four teachers offered a new course in which a small group of students with varying intellectual interests, but without special ability or interest in foreign languages would study selected literary masterpieces. Lucretius', *De Rerum Natura*, one of the works, was chosen with the purpose of giving students some understanding of Lucretius' conception of life, his advocacy of Epicurean philosophy, his attack on superstition, and his rationalistic interpretation of man and the world. When, however, a member of the classics department was invited to participate in the discussions, his first act was to bring to class a copy of Lachmann's, Lucretius', *De Rerum Natura*. He felt students should know about this early product of German scholarship and the influence of a learned German on succeeding generations of scholars. The implication of this point of view is that without a knowledge of the scholarly literature and commentaries on the great texts one cannot understand what the author is trying to say. If that be true, very few students, and indeed very few classical scholars, can ever understand more than a negligible fraction of the literature of antiquity because the bulk of secondary material is now so great, that no one in a full lifetime could digest more than a small fraction of it. If many students are to know the great works of antiquity they must read them in English, foregoing some of the pleasures and the intellectual stimulation enjoyed by those who can read in the original. Such meanings as cannot be conveyed directly in reading the English translation can be supplied by the teacher who could presumably read the original languages.

It is the responsibility of classics departments to inaugurate such instruction if they have not already done so. It is also their responsibility to proclaim such instruction of genuine worth. If courses of this type are adjusted to the intellectual abilities and interests of the average college student and enlivened by a discussion of the implications of the thoughts of the ancients for modern life, a significant percentage of students, even those not studying in related fields, would take such courses. And if such instruction were made available to freshmen many would later study the original languages in order to be able to read the works in the tongue in which they were written. Classics departments now nearing bankruptcy might thus very well become impressively solvent.

The time is right for a real revival of interest in the study of humanistic literature. All members of the academic community, and other thoughtful persons as well, recognize the predicament in which mankind now finds itself. Wisdom concerning men and their proper relationships is now most grievously needed. The humane literature of antiquity provides an abundant source of such wisdom. If the teachers of the classics will stop talking about the merits of formal discipline, about the cultural superiority of those who study languages, about the transfer value of Latin and Greek, about the values of the study of foreign languages in international understanding, all of which may be true, and begin to spend the same amount of energy in convincing students and colleagues and men generally that the classical literature contains the noblest, wisest, and aesthetically the most satisfying expressions of the human mind, and that the study of no other subject is an adequate substitute for this experience, the classics may yet be restored to their proper place in the academic world and the wisdom of the ages may yet help us through our present crisis.

General Education in Preparation for Medicine

BY ALAN GREGG, M.D.

ANYONE interested in medical education can very properly be concerned with the quality of general education in our colleges. Why? Because careers in medicine call for a great variety of interests and abilities apart from the purely professional, yet our medical school requirements neglect general education. Indeed except for the narrowly technical aspects of premedical and medical education, the student planning for a career in medicine will find very little to guide or help him in an extremely important part of training himself for his profession — his general education.

Merely describing some of the difficulties will suggest how they might be avoided or corrected. To forestall others would require study, especially if we would like to have our physicians' training above that of a mere technician. Those who are interested in general education may find in the following paragraphs a general statement of how much medical education needs, and how little it has thus far known how to get, of what general education can offer.

Professor A. N. Whitehead once remarked that he thought the degree of M.D. opens to him who acquires it an opportunity to exercise a wider range of tastes and abilities than any other professional degree. Certainly the general practitioner leads a very different life from, say, a public health administrator, a teacher of one of the medical sciences, a psychiatrist, an expert in one of the surgical specialties, a research worker, a hospital superintendent, or an editor of a medical journal. And the work of each of these medical men differs from the rest as much as does that of the general practitioner. Indeed, so different are these several callings from the usual medical career that, although they are more easily entered by the door of the M.D. degree than otherwise, they have been followed with great success by men not holding that degree.

One might infer that for so heterogeneous a series of destinations the preparatory approaches might naturally and reasonably allow a wide latitude of both subject matter and thoroughness of preparation, perhaps wider than for any other preprofessional training. But as a matter of fact the medical schools in the United States probably exceed any other of our professional schools in the definiteness and the duration of the courses demanded of candidates for admission. Nor are these requirements of the order of blue laws, vain exhortations, or casual hints. Any medical school in this country has twice as many applicants as it plans to admit, and for some schools the applicants number seven times those who are finally taken. In such circumstances entrance requirements can be rigidly applied. And they are.

Though it is not an essential step in my general argument, I would like to record here an aspect of preprofessional requirements that seems to escape attention rather frequently. By so much as a professional school requires preparatory courses it relinquishes to other schools a very important privilege and responsibility — the first screening or selection of its students. Whomever the colleges reject cannot even be considered by the medical schools. But more than this the professional school in making a long list of prerequisite courses says,

in effect, to its future students, "The younger you are when you decide to become one of us, the more likely you are to be admitted." This is a policy that favors decisions made by students who are either precocious or immature and greatly influenced by their parents or others. As a policy it underrates the student who may arrive slowly but none the less soundly at the choice of his life's work. I feel that we should not forget that man, as contrasted with other animals, is characterized by an exceptionally long period of immaturity — which is one of the reasons why he can learn so much, eventually. Why then reward so sedulously the exceptions to so valuable a factor as maturity of choice?

American medical schools vary rather narrowly in their requirements for admission. The usual minimum demands are a year of college physics, two years of college chemistry, one year of college biology. A "reading knowledge of French or German," if stipulated, is seldom if ever tested. To mention the ability to read and write the English language as a premedical requirement seems *infra dig* for the authorities, but to describe the actual level of medical students' "mastery" of English to the readers of this Journal would hardly be to comfort them that mourn.

In effect the premedical requirements as a whole involve at least two years of college. Their rigor and value are in practice somewhat increased by the usual inquiry as to whether the candidate's marks placed him in the upper third, fifth or tenth of his class. Many medical schools maintain a sort of discount scale to equate the liberal grades of one college with the more critical marking system of other institutions: an A at McGillicuddy University may not be as good as a C at Intervale College. Experience has proven the value of rating as many colleges as possible, erroneous as may be the occasional discount.

Nor is the level of preparation likely to be as good in some subjects as it is in others. The subjects required by all medical schools enjoy a considerable advantage over subjects not so required. For physics to be a required subject is for the physics department of every college almost the equivalent of an assured subsidy. Standards of support as well as of performance are thereby strengthened and stabilized. To add another subject to the required list for entrance to medical schools would improve, within a few years, the status and performance level in all the colleges of the departments concerned, but might temporarily embarrass the colleges without immediately improving the preparation of the students to any very noticeable extent.

Desirable as it would be to have close ties between the colleges and the medical schools, there are factors in play which operate against any very close collaboration. The most obvious, yet least acknowledged, is geographical distance. A large number of colleges have no medical school within many miles. Several medical schools have no university affiliations or are separated geographically from the other schools and departments of the universities whose names they bear. Another factor is more subtle. For the student a sharp transition occurs between college and medical school. The student of medicine has a heavy demand on his attention. He feels that his salad days and his nights of gregarious uproar are over. Extracurricular activities and social diversions drop to a very small fraction of what they were in college since most medical students realize that they are at last and very certainly in the business of acquiring the intellectual capital with which they are to earn their livings. The result is that the medical school is thought of as something apart from general education. And added to these reasons for a preoccupation of medical students with medical studies, comes something of the traditional atmosphere of individual apprenticeship — especially in the clinical years. Nearly all the factors of the medical student's life draw him away from the rest of the university, and away from non-medical interests. And this isolation tends to spread downward to the premedical ranks.

All the greater, therefore, is the importance of whatever general education the prospective medical student can secure before he begins to spin his

professional chrysalis about him in the usual isolation of his medical school. Why is it so important for him to take more than his premedical requirements, to be anything more than a first-rate student of medicine? To this question the answers I shall offer will be limited, perhaps unexpectedly, to purely professional considerations. I am quite aware that there are other than professional ends to be served by having our doctors cultivated and enlightened minds, urbane and resourceful gentlemen, humanists as well as humanitarians. But I shall stick to the purely professional arguments for a wide and good education for doctors: this shoemaker will stick to his last and not attempt to carry what would after all be but a small scuttle of coals to an indulgent Newcastle.

If medical educators are to attract a suitable recruitment into a profession whose various branches require and reward a wide range of tastes and talents, they must encourage rather than chill the interest and enthusiasm of a correspondingly wide range of abilities and predilections among prospective students. It is not enough to speak of getting the "right kind" of young men and women into medicine: we must think and speak of getting a reassuring *variety* of young recruits. Nor is variety of raw material merely appropriate because of the variety of the finished product. It is an important guarantee that there will be ferments at work within the profession in the future, to provide new leads, new horizons, new skills, and new tools of thought. The contributions of a skilled chemist who became a professor of obstetrics, or of a college student who after majoring in languages became a medical historian, or of a mathematician who became a leader in public health, illustrate the value of variety to a profession that would go sterile without the cross-fertilization of variant tastes and capacities. So much for variety in the mass. What of variety in the life of the individual physician?

If vacations (or any other form of rest) allow human beings to build up strength for the next task, and if doctors work hard (and they do), then any form of education which awakens interests totally different from medicine, and that can continue as restful avocations, deserves cultivation on the grounds of hygiene and efficiency. Just as tennis or golf can be played longer into a man's advancing years than football, and thus represent more foresighted sports, so some intellectual or aesthetic interests will reward a physician because he can maintain them beyond the years when even golf is sensible. A narrow premedical education instead of a wider cultural background can hardly be expected to increase the chances of a doctor finding an interesting avocation refreshingly outside his work. Surely the doctor has need to be a person as well as the patient. Indeed he will be in the eyes of his patients a singularly influential citizen if he has other interests beside medicine.

When Germany took Alsace and Lorraine after the War of 1870, the Prussian government decided to capture the sympathies as well as annex the governments of those two provinces. If it had been easy to influence the religious leaders of an erstwhile French population, the Prussians would have devoted their efforts to pleasing the church. But a Protestant *Kultusministerium* had little chance to curry favor with or enthrall the Catholic clergy of Alsace and Lorraine. So Bismarck addressed himself to the next most influential leaders of the people, the doctors, and, to impress and please them, set up in Strasbourg a new and excellently staffed Faculty of Medicine. By 1914 the doctors in Alsace had become so thoroughly converted that the French government had great difficulty in recapturing their sympathies after World War I had ended.

This story derives from the fact that the doctor may fulfill a non-medical role in his community, especially when it is a rural community, where the degree of his education probably exceeds that of anyone else and certainly surpasses that of the majority. The doctor as an influential citizen can use, and will surely be expected to use, as much of a general education as he may have gotten outside his professional training. Nor is this sort of opportunity confined to leadership in the country-

side. On civic committees, boards of trustees, of regents, and in other places of influence, doctors have the occasion to use all that their non-medical education may have given them. Even if we think only of professional interests, what immense gains our state university medical schools and our health legislation could have made if all the governors' private physicians (and confidential advisers in medical matters) had been men of broad education and cultivated tastes! Do not misunderstand me — native sagacity and natural good sense offer a better guarantee of producing sound judgment and wise advice than mere exposure to a good education. But persons who add a good education to native sagacity and sound judgment are still better qualified to serve society as the advisers of political leaders.

But now I come to the most cogent reason of all for making broad the culture of those who are going to become physicians. What does a patient want in his doctor? Professional competence and human understanding. Let us leave the question of the doctor's professional competence to the medical schools. That is their job. Now unless we want to argue that understanding is hereditary or familial, and cannot be cultivated or improved by any education, then the scant premedical years of education are the only years available to deepen the doctor's understanding of himself and of his patients, and of the world he lives in. The medical schools have not waked up to the opportunity offered by psychiatry in helping the medical student to understand himself and his patients. The psychiatrists have — odd people as they may be — but not the schools as a whole. But there is almost no time for the medical schools to help the student to understand the world he lives in. The usual fourth-year medical student, having lived for four years under the watchful eyes of his medical teachers and critics, naively forgets that before long his major contacts and his decisive critics will be laymen, not doctors.

And what will laymen look for in him? The laymen would like to admire or at least respect him whom they must trust. They don't know enough of the techniques of medicine to make better than an inferential judgment there. It is amusing to note that a general education and cultural background is exactly what the laymen would like to see in their doctor. They don't trust anything else. They would be somewhat dubious if he were a violin virtuoso lest that mean he couldn't be also a good doctor. They want him to be an educated man. They want him broadly enough informed so that he can understand their jobs and the value of those jobs. A few intelligent words on Bach is a great reassurance to a sick music teacher. A Biblical allusion puts an anxious minister at home. An approximate knowledge of industrial processes comforts a sick employee. Laymen feel restless with a boor — whether in point of manners or general education.

But deeper than that, the humanist's delight in human nature, his cultivated sense of its comedies, his trained imagination in the presence of tragedy, his breadth of well-schooled tolerance, his range of interest and sympathies, his disciplined manners — on all these the layman will be sensitive to his physician, and not one of these characteristics but can be increased and refined by a truly good general education. How can the premedical student possibly ignore the cultivation of his emotions and his tastes — in short of the values by which he will guide his patients as well as be judged by them? The management of the family as well as of the patient calls for the exercise of the physician's sense of human values.

What subjects then belong in the general education of a premedical student? Because variety within the future ranks of the profession, variety based on individual tastes and capacities, is so important, there need be no uniform and single prescription written.

I would, however, rate English as of prime importance. The ability to express oneself concisely, clearly, easily, and well, whether in speech or writing, will determine how much one can communicate to others — to patients, in professional papers, or to the general public. To know the uses and the limitations of denotative words and of

connotative language would be already a great step in making either a scientist or an artist. To know the difference between *noumenon* and *phenomenon* would be another. And to have read and pondered on a large range of English literature is a wonderfully stimulating preliminary to the interpretation of human behavior and the enjoyment of it.

For somewhat the same purpose of understanding human behavior, the science of human behavior, psychology, deserves the most serious attention though I would think that in many a college psychology needs much support and improvement before it could be generally recommended. Sociology and anthropology are similarly full of possibilities for the premedical student but the range and quality of instruction in many a college at present would need reform and strengthening to approach the inherent possibilities of these fields for the premedical student. By so much as projects involving administration of medical care are increasing in size and number, courses in government and economics will prove increasingly appropriate as part of the background training of some medical students.

The sooner in this statistical age we could trade in our courses in solid geometry and advanced algebra in exchange for a new course in the mathematics of probability and statistical theory, the better for all students who use measurement in the study of biological phenomena. Such a change would have the further advantage of increasing our precision in the formulation of the questions we ask Nature and so the dependability of her answers.

And lastly comes the question of foreign languages as part of a general education preparatory to medicine. I say "question" since I do not know whether the methods used in the Armed Forces during the war have come to stay or will be "acknowledged" into oblivion. If we were willing to express our compassion for our children by adopting a rational phonetic spelling of what will be their language longer than ours, and thus save them a total period of about one year now wasted in learning to spell, we should at the same time make English the world language. I recall a Rumanian physician's sad remark to me, " 'Though the rough cough plough me through' — I cannot learn your language"! Or the European jest, "How do you pronounce GHOTI in English? You pronounce it FISH — GH as in laugh, O as in women, and TI as in nation." But since we won't make English easier and since there seems to be inadequate daily reward in this country for learning to use any other modern language, and since the prewar kind of instruction in modern languages seems to me, in the light of some ten years I spent abroad, to have been of dubious value, I would reserve opinion until the lessons of the war experience in teaching languages become a little clearer. I care too much for really effective training in languages to urge a repetition of our former failures.

One last point in the consideration of the relation of general education to medical education. We may reasonably assume that in any given college or university the chance of there being a really superior teacher *somewhere* in the faculty is far greater than the chance of his being in any given field. The value, as a part of general education, of having had access to a great teacher is commonly overshadowed by arguments for a well planned or well integrated curriculum. Such arguments do not greatly impress me, especially when the purpose of preprofessional education is to extend the student's horizon quite as much as to control it. Consequently my personal advice to any premedical student would be, "Find out the best teacher in the college and if he gives an introductory course take it, for you will be taking him, and the view of a superb human being will afford you a wider horizon than a superbly balanced exposure to mediocrities." For it is all too often true that for lack of having encountered at least one first-rate teacher in any subject, the student's A.B. degree becomes a sort of vaccination mark showing that he has had a mild attack of bovine inquisitiveness but is successfully immunized to the more considerable fever of intellectual curiosity and spiritual hunger.

Is Teaching a Profession?

BY NATHANIEL CANTOR

THE EDITOR of this journal invited me to discuss the "principles of teaching that could be employed in a program of general education, particularly in elementary courses which, in these days of large enrollments, are very much overcrowded. What can we do under the circumstances to cultivate the student's critical attitude and his ability to achieve intellectual maturity?"

I thought about this invitation and decided not to accept it. The reason was simple. It appeared to me almost hopeless that any *genuine* learning could occur in a course which numbered several hundred students.

Then something happened. I was reading an article in this journal and I came across the following statement.

> What is proposed in this paper is better training of scholars, not a "teaching degree." Certainly a prospective instructor in general education needs no courses in "Education" (though it might be well for him to learn, through a short reading list, enough of educationist madness to stimulate his own sanity). For seven or eight years of higher education he has known the results of teaching good, bad, and indifferent; he has known every manner of method and attitude. He has learned by example, and only needs experience and experiment, which perhaps he has already begun by assisting in the freshman course. His "method" will grow naturally.[1]

Mr. Foerster's attitude toward teacher preparation, I believe, is shared by many college teachers. I sharply disagree with this point of view. I felt that I had to challenge it and therefore decided to accept the invitation and explore the possibilities of applying *professional* teaching techniques to a program of general education.

It is believed that most people can engage in effective college teaching without any special understanding of the teaching-learning process. It is strange that "training courses" for teachers of primary and secondary schools are provided while almost no thought has been given to the professional development of college teachers. A prospective college teacher does his graduate work in his specialty, receives his advanced degree, submits his recommendations, is interviewed by someone in the college administration, and, if invited to join the college, assumes he is ready to teach. He has had no professional development in one of the most difficult and baffling of professions, the profession of teaching. It is supposed that he is qualified to teach by having demonstrated his ability as a scholar, and by reason of having a more or less agreeable personality. He, the embryonic teacher, has little sense of what his function as a college teacher is, although he has been motivated by an interest in a subject, a regard for academic life, or an amorphous desire to "teach." His own view reflects, generally, the role of a teacher as defined by the overall social structure.

Since teaching practices throughout the country are so divergent, and since the form, content, and goal of education are so diversified, it will be difficult to reach an agreement on our premises. I should like to present a point of view which will help to clarify the function of the teacher or, at

[1] Norman Foerster, "The Teacher of Great Literature," *The Journal of General Education*, I, (January 1947), 112. For an opposite point of view, see: Lewis A. Dexter, "Teaching Social Science as a Set of Skills," *American Sociological Review*, XI (April 1946), 146-50.

least, will raise the important issues so that differences of opinions may be clarified.

Before stating my own views, it will be well to examine some of the confusions and assumptions implicit in so much of the literature regarding college education.

II

1. GENERAL EDUCATION *versus* SPECIAL EDUCATION

I have never been able to understand the distinction between general education and special education. It has always seemed to me that education is one organic process, that one learns what one learns. Similarly I have never been able to understand what is meant by the study of general history. Any kind of history is a history of *something*. Education likewise, cannot be general. It always deals with some specific subject. Would the reader agree that we never possess "just" facts, "general" facts? Facts always relate to a case *in point*. A fact is an empirically verified statement about phenomena in a *particular* frame of reference, otherwise, it is literally non-sense.

What I am trying to say is that the usual dichotomy between general education and special education is false. The distinction, when it has validity, can refer only to the frame of reference in which education occurs. My meaning can be made clear, perhaps, if the usual quip about the expert's being one who knows more about less and less is turned around and we define him as one who knows less about more and more. One case emphasizes how much he knows about something, and the other, how little he knows about everything else. The distinction rests upon the frame of reference. The important point is that in both cases he knows exactly what he knows.

For example, a physician is certified to practice the specialty of medicine. From the point of view of the layman, he is a specialist in the field of medicine. Now the neuro-surgeon is a specialist from the point of view of the general practitioner. Both are specialists from the point of view of the layman. The distinction between general and special education can have point only in terms of an arbitrary frame of reference, and not in light of the content of knowledge.

The point of the foregoing discussion is simply that the principles of teaching are the same for all college education. They do not differ in a program of general or special education since education is one process. This leads us to the second confusion which I wish to examine.

2. OBJECTIVES OF COLLEGE EDUCATION

The purpose of education is "to increase one's perception of the world about him" (William James). We aspire "to educate our young people to be good persons, to be good citizens, to be good family members, to be good workers." [2] The aim of education is to give the life of the student new meaning, new significances, greater control over his conduct, to help him discover his capacities so that he may enjoy self-determination and self-realization. These statements will serve as a general summary of the tremendous outpouring on the aims of college education during the past twenty years.

Most of us agree intellectually on these objectives. To translate these objectives into a living educational experience is another matter. Whatever course is offered in the college of arts must contribute to making clearer to the student the kind of world he is living in, the kind of person he is, the problems he and others have to face, ways of meeting these problems, the traps which he will be exposed to, the contending beliefs, faiths, and hopes of man extending in time and territory. The student must be helped to acquire a sense of wholeness in a world "rolling on its relentless way, blind to good and evil, reckless of destruction." The individual, shoved around in the harlequinade of modern life, breathless and footless, or sheltered in the shadow of some side-show, must be helped to discover the stars which canopy the whole.[3]

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[2] Ordway Tead, Bulletin No. 5, The Board of Higher Education, New York City, p. 4.

[3] Nathaniel Cantor, *Dynamics of Learning*, Foster & Stewart, Buffalo, N. Y., 1946, p. 83.

The test of whether we are or are not confused about such objectives of college education will, in part, be found in the kind of curriculum offered by the college.

3. THE CURRICULUM

All of us agree that modern education suffers from the lack of a synthesis. We do not agree, however, about the remedy. Mr. Hutchins feels that a certain number of books will provide the unifying principle. Columbia University finds the key in orientation courses. I do not feel that either "camp" has thoroughly examined the underlying assumptions upon which their proposals rest, nor what happens to the student.

A closer examination of the underlying philosophy of the adherents of great books or general courses will show that neither group has paid much attention to the cultural context of the contemporary liberal arts college.

In 1933 Professor Alfred North Whitehead wrote:

> Our sociological theories, our political philosophy, our practical maxims of business, our political economy, and our doctrines of education are derived from an unbroken tradition of great thinkers and of practical examples, from the age of Plato . . . to the end of the last century. The whole of this tradition is warped by the vicious assumption that each generation will substantially live amid the conditions governing the lives of its fathers and will transmit those conditions to mould with equal force the lives of its children.[4]

Eric Fischer wrote in 1943:

> The shift of the centers of gravity will merely be accelerated if Europe collapses. This shift will continue even in case Europe should recover. Europe can never regain the position it maintained during the last two centuries. We feel entitled to state that the Age of Europe has passed.[5]

We are no longer living solely in the Western Tradition. European wisdom is not enough, and our educational system cannot be focused primarily upon Western European civilization. We are being driven to the position where we have to review our intellectual inheritance in order to *re-evaluate our emotional attachments to an old world order that is disappearing*, or, at least, radically changing.

I wholeheartedly agree with the conviction of Howard Mumford Jones that the American colleges ought to consider a program which would emphasize these six points:

1. Professional or vocational training for all.
2. The study of the theory of science and of the application of scientific discoveries to our technology.
3. The assumptions and workings of representative government, particularly in the United States and in the British Commonwealth of Nations.
4. The study of Russia.
5. The study of the Orient.
6. The study of personal relationships in modern society.[6]

We cannot afford the luxuries of the traditional liberal arts education for gentlemen of leisure. A liberal arts program which deals primarily with traditions of the past 1900 years is not focused on the accelerated changes of the contemporary world. The contemporary world, I re-emphasize, is radically different from the Western Traditions which most of us teaching today have been nourished on. The liberal arts college curriculum must have its objectives geared to the realistic world in which students have their being. It has to be geared to the kind of world in which they now live, in which they have to earn a living, and in which they must participate. The kind of world they must understand today is not the kind of world with which the literature and history and politics and economics in the traditional courses are concerned.

The logic of this point of view leads to an examination of the structural setup of the traditional liberal arts college.

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[4] Quoted in Howard Mumford Jones, *Education and World Tragedy*, Harvard University Press, Cambridge, Mass., 1946, p. 66.

[5] *The Passing of the European Age*, Harvard University Press, 1943, p. 201.

[6] *Education and World Tragedy*, Harvard University Press, 1946, p. 91.

4. DEPARTMENTS OF KNOWLEDGE

One of the greatest evils in the American College is the structure of departments. The college professor is trained as a specialist in a field of knowledge. His function is to pass this special information on to students. The knowledge imparted in the college classroom equips the student with a miscellaneous array of isolated data and some new verbalizations, an additional language apparatus which lulls him into a false sense of having really learned something. In reality his confusion is increased. The authority of the Word and its Devotees adds to the load of undigested symbols acquired before entering college.

The college curriculum itself is set up in terms of knowledge, and is little concerned with students and their problems or with the problems of the contemporary world. There are departments of economics, sociology, history, biology, or divisions of the social sciences, the humanities, and the physical sciences. *The curriculum consists almost entirely of answers, not problems, answers to questions which have never occurred to the student, and which they have never raised.* Further, there is a failure on the part of instructors to clarify the relationship of *new* questions to the students' own problems.

Knowledge, in itself, is sterile whether it is in the form of the Encyclopedia Britannica on the library shelf or in the text book of the student, or in his notebook, or his examination. It is sterile and useless if it remains in the form of intellectual concepts retained by the student long enough to pass the instructors' examinations.

Knowledge is not power. The *application* of knowledge is power. The important matter overlooked in the traditional imparting of knowledge is how to determine the ends or goals which applied knowledge is to serve. Knowledge must be instrumental and not an end in itself, otherwise it is symbolic of little or nothing in the lives of students.

In order to avoid possible misunderstanding, I insist that *knowledge is necessary.* Symbols, concepts, ideas are the instrumentalities by which an enlightened framework of beliefs is gradually selected and constructed. Knowledge is essential to make clear the conditions under which students will have to face the world. Knowledge is necessary to differentiate clear fact from exciting fancy, poisonous propaganda from rational planning.

It is impossible to achieve critical thinking and deep understanding without definite data. The instructor has a responsibility to present data. Content of subject-matter is not to be discarded but *made significant in the light of student interest.* Facts must be acquired in order to recognize the character of a problem or to realize its existence. Ideas are real weapons, and learning cannot take place without them. (If student interest is not yet awakened, the skilled instructor may help to revivify whatever residual interest is present. I am optimistic enough to believe that most students in the college classroom have enough curiosity and interest which can be enlisted).

It is the difference between knowledge and learning that I am trying to emphasize. The meaning of any course lies in its importance, its import, to the student at the time he is engaged with it, just as the meaning of any book depends so much upon what the reader brings to the book.

Students receive little help from "courses" because the knowledge problems of the textbook authors and the professors do not seem essential to the students — and more often than not, the students are right. Every course is a course about something. There must be a wider frame of reference than the relation of ideas in that particular course. The larger framework must be the contemporaneous world in which the *student lives.*

Students enter the liberal arts college for a number of different reasons. The great majority would agree that if the college helped them to direct their personal life, the time, effort, and expense involved would be very much worthwhile. Students are curious and eager, contrary to the opinion of many instructors. Their apparent lack of interest in what the professor talks about is, in part, a commentary on the way the subject-matter is taught. The individual student craves

confidence in his ability to amount to something. He does not particularly enjoy the feeling of defeatism and helplessness which overcomes him in the face of vast institutional processes and complexities described in the courses which he does not understand but to which he is subjected. This does not imply that the material should be cut to fit what is desirable to believe. It means the data must carry meaning which extends beyond the mere logic of ideas.

He has enthusiasm and seeks purposes through which it can be expressed. He wants understanding of himself and others. He seeks reassurance against his own frustrations. If in nothing else, every student, like each of us, is a specialist in living his own life. He senses the gap between what is talked about and what he has lived. His present needs and views are not understood, and hence, are not met as far as his college classroom experience is involved. He is left pretty much untouched by the subject-matter of the course. He graduates and enters the competitive struggle for economic security in which, even if successful, he will not necessarily find inner security and rich happiness.

Here is the challenge to college teachers. How can knowledge be made part of the lives of the students? By interpreting it in light of the needs of the students. By helping them to construct for themselves a new framework of ideas and feelings which relate to the actual world in which they live. This means they must be helped to develop broader meanings and enriched insights implied in the facts they obtain so that they understand themselves, their relations to others, and their role in society.[7]

As Professor Kandel of Teachers College, Columbia University has said, "a successful education can only be looked for as teachers become masters of what they teach, recognize the relation of what they teach to the society in which they teach." [8]

Professor Kandel points to three criteria of successful teaching.

1. Mastery of subject-matter
2. An understanding of students, and
3. The wider frame of reference to which their subject-matter applies.

The members of a college faculty are prepared to teach something. They are not prepared anywhere to understand how the subject-matter relates to the living world of people nor do they receive any help, professionally, in the understanding of those whom they teach.

The graduate schools train specialists in knowledge. They turn out people who are informed without necessarily being intelligent. "For, outside their special subjects, these men of science are as helpless as wasps on windowpanes. . . .In a word, they are informed without being intelligent." [9] The graduate school of arts and sciences must also concern itself with an area in which the second and third criteria indicated by Professor Kandel are provided for. Our graduate schools must produce teachers who will be philosophers in the broad sense of the term, and who will understand students.

It does not lie within the province of this discussion to explore what would have to be done to alter the graduate school. May I merely call attention to the proposal of Howard Mumford Jones, *viz*, *The Research Training Institute*? The primary purpose would be not the training of research workers, but the "education of persons competent to teach intelligently the general work of liberal colleges." [10]

I find myself in wholehearted agreement with Professor Jones. He does not indicate, and that was not his task, how candidates for teaching in the colleges are to gain the professional understanding involved in the teaching-learning process. Every reader will agree that this is the crux of the entire problem of effective college teaching.

It is significant that there is very little discus-

[7] Nathaniel Cantor, *Dynamics of Learning*, Foster & Stewart, Buffalo, N. Y., 1946, pp. 26-27.

[8] "The Fantasia of Current Education," *The American Scholar*, Vol. X (Summer Issue 1941), 297.

[9] C. E. M. Joad, *Guide to Modern Wickedness*, Faber and Faber Ltd., London, 1939, p. 294.

[10] *Education and World Tragedy*, Harvard University Press, 1946, pp. 151-71.

sion in the controversy over curriculum or college objectives regarding the nature of the teaching-learning process or of the skills required of the teacher.

Any curriculum plan, old or new, and any method of instruction, cannot be better than the instructors responsible for helping students grasp the significance of the data.

III

1. THE PERSONALITY OF THE TEACHER

The teacher, we have stated, must be fortified by a knowledge of, and an insight into, personality development as well as by professional skill. Some day it will be realized that no one should be certified to teach in a college who has not received professional training in the teaching process — and we do not mean the kind of *training generally given in state teachers' colleges.*[11]

Most of us live through childhood, adolescent, and adult experiences without realizing what little "guidance" we receive or give. In our relationship with our parents, sisters, brothers, friends, teachers, and, later, with husband or wife and children, we exploit and are exploited by each other. We use each other in order to dominate or to befriend. Rarely are we ready to stand by and (within wide limits) permit ourselves to be used by the other person in precisely the way *that* person wants to be helped. We are taken advantage of in order to satisfy the other's emotional needs. In turn, we use others to satisfy our tensions and anxieties. We are afraid of the new, hidden and powerful forces of creation, which threaten our own established habits and the convention of society.

The positive creative forces of individuals which express their differences from those about them must be channelized into the encrusted bed of tradition. We fluctuate between attitudes of blame and praise in our intimate contacts with each other where emotional ties are strongest. We have to preserve whatever we have at stake and maintain our self-regard or the respect of others. Hence, we shuttle between dominating, excusing, or yielding to others. We wish to control or want to be loved. Rarely, in these deep contacts, do we stand aside and (within wide limits) accept others just as they are. We are driven to create in our own image. It strikes us, if and when it does, as shocking and amazing how rarely a child or adult is permitted an effective margin of genuine self-determination. It is difficult, wholeheartedly and unaffectedly, to accept those who differ from us.

Teachers share these inevitable needs to dominate or to be well thought of, to be approved of. There are not many individuals willing to assume the responsibility of genuine self-discipline so that they become *relatively* immune to the judgments of others and are willing to let others think, feel, and act in ways relatively different from their own. Such inner steel strength is acquired through painful self-discipline and professional training.[12]

When students and instructors meet in the classroom, they become objects of each other's will. Students want to have their way, and the instructor wants to have his way. The instructor who brings to the classroom a set of disciplined attitudes based upon insight into human relations recognizes this conflict. He knows and feels his own responses and has learned to control them. He will permit students to develop at their own individual tempo and on their own level. He is interested in understanding and accepting the differences expressed by the students. By recognizing the right of each student to be different from every other student and by communicating that feeling to them, he frees them to express themselves with regard to their honest reactions

[11] W. Carson Ryan, *Mental Health Through Education*, Commonwealth Fund, New York City, 1938.

[12] Percival M. Symonds, "The Value of Adjustment of Prospective Teachers," *Mental Hygiene*, XXV (October 1941), pp. 568-75. L. H. Meek, "Preparation of Teachers for the Emotional Guidance of Children," *American Journal of Orthopsychiatry*, IX (July 1939), 494. E. H. Roso, "The Classroom as the Setting for a Fulfillment of a Function," *idem*, IX, p. 477. Superintendent Harry A. Wann of the school department in Morris County, N. Y., writes, "The training program for the teacher should include courses in mental hygiene, psychiatry, and social-case work techniques, such as now are part of the training of social case workers. . . ." "Mental Growth Through Education," *Mental Hygiene*, XXV (January, 1941), 21.

to the subject-matter. Unless students are free to express their emotionally-sincere reactions to the subject-matter of the course, movement toward genuine growth and reconstruction of their attitudes simply cannot take place.

The skilled instructor will not exploit the students for the release of his own tensions. The classroom will not be used by him as a clinic to solve his emotional difficulties (which often remain unrecognized by the instructor). He will refrain from *imposing* his point of view upon students, always keeping in mind the tendency each one has to dominate, to be "right." He will not be sarcastic or exhibitionistic. He will not ridicule or "talk down" to students nor "baby" them. He will recognize the dignity and inevitable differences in capacity of every individual student. Aware of his own ceaseless struggle to dominate or submit, he will appreciate similar conflict in others and permit them a large degree of self-determination.

The instructor in any case will be interested in watching the reactions of the students to the data he presents to see what is happening to their attitudes being shaped by that course. If his authority is to be exercised, it will not be imposed arbitrarily, but used professionally, as a necessary factor in helping the student meet the obligations of the classroom and the course. The spirit will not be "I'll show you who's boss here," but, "I am responsible to see to it that such and such conditions must be observed. There is nothing else I can do about it. It has to be this way according to my responsibility to the college."

The instructor who is clear about his professional teaching-self will not only permit but welcome differences in student attitude, differences in methods of expressing the attitudes, differences in the tempo of learning, and in ways of learning.

Faculty members agree *intellectually* that all individuals differ in many respects. To translate this into a dynamic "give and take" relationship with students is another and more difficult matter. The tendency is in the other direction, that of viewing student accomplishment in the light of standards held by the instructor. It is the teacher's view of what constitutes the "right" interpretation of data, of the amount of work which students ought to do, of how rapidly they should move, of how much they should know, which constitutes the standard of work and accomplishment.

2. COMMON ELEMENTS IN THE TEACHING PROCESS

While individual students differ in the kinds of problems they bring to the classroom and while the colleges differ in the courses offered, the teaching process or method used by the instructors in any class will have the following common elements:

1. The teacher will understand the dynamics of human behavior in its individual and social aspects;
2. The teacher will be concerned primarily with understanding and not judging the individual;
3. The teacher will keep at the center of the teaching process the importance of the student's problems and feelings, not his own;
4. The teacher will clearly recognize that he can offer help only within the subject-matter of the course, as it relates to the function of the college;
5. Most important of all, the teacher will realize that constructive effort must come from the positive or active forces within the individual student.

These factors will be recognized in all courses. The way in which they will be applied, however, will vary in light of the particular problems brought up in a specific class. The teaching process is characterized by common elements, but it becomes differentiated in terms of particular students and particular situations.

The student's self, as that of the instructor, is a dynamic, ever-changing one. One can never accurately know in advance what one's needs are going to be, nor whether the help that is offered is going to be accepted and to what degree. That

is unpredictable. The teacher's responsibility is not for the student's personal development as such but for the development of the meaning of the particular course. That is what he is in the class for. That is his service. The interpretation of the data in light of its meanings to the student is the factor which the teacher can consciously control.

This seems to contradict the position that the development of the student should be central in the teaching process. But the apparent contradiction is resolved if one bears in mind the general goal of education and its specific objectives. The college student, as a whole human being, comes to college to be helped toward a better understanding of himself and society. The instructors, in their several courses, are limited. They must confine themselves to and deal with a specific subject-matter. In so far as the student shows interest in, or has his interest awakened and enlivened by a special subject, he can be helped to develop or modify his understanding and attitudes *with reference to that limited course.* Attitudes are not shaped in a vacuum. They are acquired by facing and working through specific problems. If the teacher sticks to his specialty, the possibility of development is established since a new, unique experience is made possible for the student. Change and growth, by-products important enough to be considered almost equal to the translation of the limited subject-matter, occur. To function in a limited way, through the specific course *as it is related to the problem of the student* in that course, while keeping in one's *background* the goal of *general education,* requires the highest kind of professional teaching skill.

3. THE FUNCTION OF THE TEACHER

The college determines the philosophy of education, the content of the curriculum, the selection of the students, and the conditions for receiving credit.

The instructor, who is the representative of the college in a particular course, is charged with implementing that educational policy. That is the given, the known. It is the only stable factor, the only focus which defines the direction from which the learning process can proceed in the given course. The student comes to class. What will happen to any particular individual by way of genuine growth cannot be predicted in advance. It will depend upon (1) the student's discovering for himself *in the process of learning* what he really wants out of that course and (2) the skill with which the instructor utilizes and meets the real needs of the student. (These two factors are, of course, closely interrelated.)

What takes place between instructor and student provides the dynamic conditions which will be used by the student in his own way. Whatever genuine learning takes place occurs when the help offered by the teacher, elucidating the meanings of the data, is accepted willingly by the student as an aid toward making the meanings his own. The instructor provides the aid; he cannot guarantee the willingness of the student to do something about learning. He can free the student from fear of authority, lowered self-esteem, the feeling of insignificance; he can release him to express himself, to show his differences, his disagreements, and he can help him to acquire a sense of determining for himself just what the course means to him. He can communicate to the students that it is their course and have them answer the question, "What shall we, the students, do about it?" Just as the instructor should make clear to them what his function is, so the students must be helped to define for themselves how they are to meet the responsibilities which entering the courses imposes upon them.

4. THE RESPONSIBILITY OF THE STUDENTS

Long before the student enters public school, certain basic attitudes have been shaped. The attitude toward authority is of particular significance with regard to the classroom situation. Every child learns rather early that there are external forces which can control him. In intimate contact with parents, the child learns to submit to their authority and avoid punishment. His brothers and sisters, or schoolmates and playmates, teach him, or com-

pel him by force of numbers to do as they are doing. If he wants to get along, the opinion of the majority must prevail. In addition, being like others gives one a sense of reassurance. Contrariwise, being different is accompanied by a sense of fear and guilt, just as observing certain differences in others which have particular significance for the observer, brings a sense of fear, irritation, and hostility.

As the child passes through the grade school and high school, his previous attitudes toward authority are reinforced by classroom experiences. Now it is the parental-surrogate, in the form of the teacher, who wills authority, and classmates who represent the force of numbers. The teacher is older. He or she knows more. He knows, students hear too often, what is good for you. "Just listen to your teacher and do what he tells you." The student *just* listens to the teacher and does what he is supposed to do through the fear of examinations, fear of disapproval of teacher and parents, fear of grades, and the ridicule, if he fails. He fears making a fool of himself, and seeks anonymity by becoming lost in the group or in the assigned lesson. By giving back what had been assigned to him, nothing is lost, and nothing essentially gained except being let alone.

The inference is not to be drawn that the authority of teachers or numbers is not desirable. It is — up to a point. Where such authority results in depriving the student of desirable self-expression, the point has been passed. What is "desirable" cannot be stated in a formula. It depends upon the particular situation and the particular individual's needs at the time.

The majority of primary and secondary schools emphasize the academic curriculum. There are so many pages of text to be covered in a given number of hours. The child's emotional development, if attention is given to it at all, remains secondary. There is little appreciation of the fact that early school experience is primarily a heightened emotional period in which one's attitudes with regard to self-esteem, competition, rivalry, jealousy, hostility, confidence, humility, cooperativeness, aggression, and the like, are being shaped and reshaped. The adjustments always carry important *feelings* of failures or success.

The pre-adolescent and adolescent find themselves in high school. How little the average high school teachers appreciate the nature of the real problems of their pupils! The teachers want to "train the mind," fill it with ideas and facts by means of lessons to be "learned." The pupils "take it," and return it. Their curiosities, confusions, imaginations, loves, and hates, with regard to themselves, their parents and others, belong in a world almost totally ignored by the school. Their real problems remain more or less concealed.

These high school graduates enter the freshman year of college in a haze. More authority, more "training of the mind," more facts and ideas, more lessons to be learned. College is high school piled higher and thicker. The physical surroundings of the college classrooms support the psychological atmosphere of the high school. There are the teacher's desk, the blackboards, the rigid rows of seats. The teacher enters. The lesson begins. What is the student supposed to do? The only thing he knows under the circumstances. Out come the nice new notebooks, and pencils, and college "education" begins.

Under such a program, the responsibility of the student is to take notes, cover the readings, or laboratory experiment, and demonstrate that he has "successfully" done so. If he receives a passing grade, it is supposed by the instructor and student that the latter's responsibility has been discharged.

This pattern of learning does not permit the student to participate in his own development. It is the pressure of authority, the pressure of grade competition, which forces him to conform. There is no positive participation on the part of the student. There results a split in his self. His real problems engage his private attention, and the external pressure of keeping up with the standards of the college force him to do the public superficial work required by others.

The professional teacher can help the student to

define for himself a different kind of self-responsibility, and the way it is to be discharged. The skilled teacher, aware of the attitudes the students bring to the classroom, can help to re-shape and re-organize them. This awareness will express itself in the *way* the class sessions are conducted, in the kind of assignments given, in the material selected for discussion, and in the degree to which students are successfully encouraged to participate *meaningfully, not verbally,* in the course.

The instructor should make clear what he has to offer the students, and what he will require of them. This does not mean that the students will grasp at once, or at all, the techniques and the procedure of the instructor. Indeed, they may not quite *understand* the nature of the responsibilities, they are required to assume. It is enough, and even better, if they are, or become, responsible without realizing it. If they are led to participate in their own education, if they feel the instructor will sincerely accept what they think and feel about the subject-matter, the students will genuinely respect each other's differences. Conflict of opinion will be expected with regard to each other's views and that of the instructor, and, therefore, there will be freedom to express one's differences.

Now we come to the real difficulty, that of applying these ideas to the present crowded classes of students numbering one, two, and three hundred or more. Ideally a class should not number more than twenty to twenty-five. The larger the group of students, the more difficult does it become to learn the interest of the individual student. A group of twenty-five students informally gathered around a seminar table or sitting in a small circle discussing a problem creates a quite different atmosphere than a large amphitheater seating several hundred students row upon row, facing the oracle seated behind a desk, in front of a microphone. The situation is, from an educational point of view, preposterous. The fact is, however, that we must deal with a preposterous situation.

The principles of education are sound whether a group numbers twenty or two hundred. Indeed, my specific suggestions are made just because I keep the above principles of the teaching-learning process in mind.

I offer several concrete suggestions: (1) It may be useful to give an "attitudes" test before the course gets under way to find out what the students know or how they feel about what is to be explored in the course. (2) The instructor can draw up a series of ten, twenty, or thirty important themes in the "course" in question. These themes should be passed out to the students registering for the course, asking them to indicate in what area or areas their real interest lies. In addition, the students should be asked to indicate what their professional or vocational interests are.

This information rests upon two principal ideas. The instructor, because he is more competent to judge his subject, guides the students by indicating initially what, in his opinion, the more important issues in the subject are. The student in turn, by indicating his preference of topics as well as his professional or vocational interests is helping the instructor determine the student's interests in the course. (3) By carefully sifting this information the instructor will be able to determine which themes have the greatest interest for the students.

A panel of five to fifteen students, depending upon the size of the class, can then be appointed to be responsible for the topic or topics in which they indicate their interests. The panel members responsible on any particular day for the theme in question will be seated in their usual places. With the special preparation on the part of the panel members the skillful instructor will be able to direct fruitful discussion.

The teacher who understands the dynamics of learning will be able to communicate his appreciation of student difficulties, and differences, both intellectual and emotional. He will create a permissive atmosphere through his own spirit. Most students will respond if they sense that the class is theirs, and the instructor is there to help them in relation to the material.

I have tried throughout this article to emphasize the need for an individual-centered college classroom experience. "Individual-centered" does not mean rampant, anarchic stewing in one's own half-baked ideas and emotional juices. It means that we employ data relevant to the objective issues of man and his world. It means also that the student is not made for the data, but that the data are used for the student.

"The dilemma of education," Dr. L. K. Frank has stated, "arises from belief in man as a rational being in whom emotion can be controlled by reason and intelligence. Educational programs shrink from any frank acceptance of the underlying personality make-up and emotional reactions of students as entering into the educational situation because to do so would bring a widespread collapse of the whole educational philosophy and undermining of approved pedagogy." [13]

"No formulations about man and his place in society which do not prove strictly and literally accurate when tested by the experience of the individual can have more than a transitory or technical authority. Hence we need never fear to modify, prune, extend, redefine, arrange, and reorient our sciences of man as a social being, for these sciences cannot point to an order of nature that has meaning apart from the directly experienced perceptions and values of the individual." [14]

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[13] L. K. Frank, "Dilemma of Leadership," *Psychiatry*, II (August 1939), 247.

[14] E. Sapir, "Psychiatric and Cultural Pitfalls in the Business of Getting a Living," *Mental Health*, Publication No. 9 of the American Association for Advancement of Science, Vol. 39, p. 237.

N. B. The department of sociology and anthropology at the University of Buffalo is administered in accordance with the ideas of education expressed in this essay. All courses are conducted through discussion techniques, or/and actual research by the students. The members of the department — L. Gross, M. Albrecht, N. Sherry, C. Brant, A. Gouldner, J. Wolpert, J. Wike, P. Holder and R. Gedney are in agreement with what has been here expressed. N. C.

Implications of General Education for the Teaching of Biology

BY THOMAS S. HALL

THE USUAL solution of a problem in educational planning is in terms of ends and means. Since the broader aims of general education have been presented in many recent books and articles, they will be restated here only briefly, and consideration will be chiefly devoted to possibilities of obtaining the results desired. Unfortunately, all experiments in general education, at least in its 20th century incarnation, are in a very preliminary stage, with few actual results as yet available. The present problem of the biology teacher, therefore, is to discover the practical implications for him of the objectives which have been set up for general education as a whole.

The ultimate objective of all responsible educators is Utopia. In the particular Utopia of the general educator, the average citizen appears as an individual who is able to give a rational account of his actions. He is aware of their origins, their limitations, and their possible consequences. General education consists in the teaching and learning necessary to make this possible. Practically, of course, such a goal is unattainable, except to a limited degree. Progress toward it, however, is both possible and desirable, and it is this which the general educator has, according to his writings, adopted as his purpose.

The problem which confronts us first is a practical one: namely, whether, in the general curriculum, biology as such will continue to exist as a separate course. This question can perhaps be answered by referring to the object of general education stated above. To give a rational account of one's behavior as an individual would require a grasp of the origins of human experience *in general*. But, since there are *several* origins of human experience (political, biological, esthetic, religious, etc.) and since their respective disciplines have never been effectively reduced to a common denominator, the content of general education is separated into divisions, the so-called subject matters. It is usually understood that, in a program of general education, no major subject matter division will be entirely omitted from the experience of any student. Perhaps with time the subject matter divisions which are familiar to us today will disappear or be replaced. This must await the study by competent individuals of the way in which the total substance can best be segregated and arranged. Biology, for example, shows a current tendency to be united with physics, chemistry, etc. into a division of "natural science." Parts of biology, however, could for teaching purposes be effectively united with sociology, philosophy, and a number of other subjects. Up to the present, no generally accepted formula has been proposed for partitioning this science or merging its parts with the parts of others. What we shall say about it here, therefore, assumes its separate existence in the curriculum. This does not mean, however, that such an arrangement is necessarily the best possible one.

BASIC ISSUES

For the biologist who expects to co-operate in general education several basic issues exist. It is useful for us to be aware of these even though

practical considerations often make it impossible for us to meet them squarely.

In the first place, there are two ways of looking at the relation of biology to the curriculum as a whole. One of these begins with the assertion that *biology is worth studying for itself*, and that it will for this reason have a place in a general curriculum. Proponents of this approach, however, concede that special presentation may be necessary to increase the usefulness of the subject to the general student, (general, i.e., as contrasted with preprofessional). The second viewpoint begins not with an assertion but with a question, or a series of questions: e.g., of what does a general education consist? does it include biology? if so, what biology? For a number of reasons, it may be predicted that biology courses for some time to come will reflect a compromise between these two points of view, and it is possibly desirable that they should. Strictly speaking, however, general education undoubtedly takes its departure from the second of them. "The job for educators during the days ahead," says Mark Van Doren, "is a job of discussion. No curriculum will emerge unless this discussion is constant and fundamental. But the one thing necessary for that is a common desire among teachers, corresponding to a common desire among men, for the clearest obtainable notion as to what the human mind can be and do." [1]

Furthermore, in establishing a course in any subject matter, it is possible to regard the student in at least three different ways: as a potential practitioner of the subject in question; as an individual whose personal well-being is the most desired outcome of his schooling; and as an inevitable contributor of good or evil to the human community. Actually, all courses combine these three points of view in varying degrees. But it is now generally agreed that traditional subject matter courses of the past fifty years often failed adequately to distinguish the preprofessional from the general student. This has, at any rate, been emphasized by authors as distinct in their approach to the problems of general education as Mssrs. Hutchins [2] and Conant.[3] We may, in fact, recognize two moderatly well-defined transitions in the recent history of American college education: one coming after the first world war when certain colleges introduced new courses especially designed to benefit students as individuals (not, for example, as potential Chaucerians or entomologists); and another, now in progress, in which the student is coming more and more to be regarded as a citizen of the world. As it works out in actual practice, we are experiencing today not the rejection of any of the three above-mentioned ways of regarding the student but a shift in emphasis toward the last of them.

THE SEARCH FOR SPECIFIC OBJECTIVES

The foregoing statement of issues suggests that the search for specific objectives may be conducted in two ways. One of these isolates the biology course for separate consideration. It simply asks how the major principles and problems of biology can best be made clear to the student. The second considers the course in relation to the rest of the curriculum. It asks how the biology course can best contribute to the common ends desired by and needing co-operation of all teachers participating in the experiment as a whole. The first of these methods is not new but has been employed by biology teachers always. It is the second which especially concerns us here.

If new objectives are in store for the biology course by virtue of its participation in a general curriculum, these should emerge from an examination of the desired characteristics of the generally educated individual. The two chief qualifications of the latter, as he appears in the writings of general educators,[4] are his reasonableness and his enthusiasms. His reasonableness, according to these

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[1] Mark Van Doren, *Liberal Education*, New York, Henry Holt and Co., 1943, p. 111.

[2] R. M. Hutchins, *Education for Freedom*, Baton Rouge, Louisiana State University Press, 1943, Ch. 2.

[3] J. B. Conant, Introduction, *General Education in a Free Society*, Cambridge, Mass., Harvard University Press, 1945.

[4] The relative importance of these two functions was discussed in R. J. Havighurst, "Emotional Outcomes of General Education," *Journal of General Education*, Vol. I (October 1946), 39.

authors, would include not only the indispensable capacity to think logically but also a balanced variety of intellectual experience without which the logical faculty fails to produce the effect desired. His enthusiasms, like his reasonableness, would be *general*. By this it is not meant that every college graduate is supposed to understand and enjoy everything equally, but rather that the sources of his knowledge and his concern might profitably be more comprehensive and more symmetrical than is now generally the case.

Since, then, the generally educated are supposed to be reasonable, one of the foremost, if not the foremost, aim of the biology course is to promote the reasonableness of its students. This it tries to do in two ways. First, it supplies information as a basis for the reasoning which the student must do, now or later, in his role as a citizen. Content, therefore, will be weighted partly in accordance with its actual usefulness in this respect. Consideration might be taken of the fact, for example, that as a citizen the student would possibly profit more from a knowledge of the biology of race (as developed, let us say, by Dunn and Dobzhansky [5]) than of the serial homologies of the polychaetes or Malacostraca. But secondly, and of possibly greater import, the biology course attempts to assure that such information as it imparts will be used by the student in a reasonable way. This means that the course takes on as a conscious function the development of the rational competence of the student; that is, it takes specific steps to help the student acquire analytical methods which are as objective and reliable as possible.

Further, since the generally educated are supposed to possess a wealth of enthusiasms, it becomes an objective of the biology course to supply sources and promote the capacity for enjoyment. This provides us with a number of helpful suggestions. First, since it is true to a certain extent that we enjoy what we understand, the presentation of the subject matter will be with a view to a thorough understanding of it, even though this involves, as it undoubtedly will, a drastic reduction in the total amount of "information" which students might otherwise be expected to impound. Furthermore, we will, while deciding upon the inclusion of various items in the content, try to keep in mind their possibilities as sources of future enjoyment. And finally, we can probably have more hope that the student will derive later satisfaction out of these things (whether they be personalities, concepts, or objects of nature or art) if he enjoys them when he encounters them in our course.

As a corollary to these remarks on enjoyment, we will wish to remember that the generally educated man is, above all, supposed to be able to enjoy *himself*, and others of his species. For this reason, the biology course in the general curriculum stresses an understanding of the human animal. To understand a thing is, perhaps, not equivalent to enjoying it; but it paves the way. For the surgeon who understands what is in his hands, there is such a thing as a beautiful tumor. For the criminologist there exists the possibility of sympathetic concern even for a potential public enemy provided the latter's origins are to some extent understood.

ORGANIZATIONAL POSSIBILITIES

A number of criteria are available for subdivision, selection, and sequence of subject matter. According to the use and weighting of these, the content of the course assumes form. The various criteria can be evaluated by considering the results obtained from employing each of them for the development of a possible type of organization.

Plan 1: Organization based upon the internal logic of the subject matter. This plan takes its departure from the basic assumption that topic N will be best understood if the student already understands topic M, and so on. This premise has undeniable validity but carried too far can become an incubus. Much that today is considered desirable background for grasping certain concepts was quite unknown when these concepts were originally clarified. It might be held, for example, that

[5] L. C. Dunn and T. Dobzhansky, *Heredity, Race, and Society*, Pelican Books, 1946.

a grasp of the fact of the circulation requires as a basis a knowledge of the vessels through which it occurs and without which it would be impossible. Historically, however, the transfer of blood from arteries to veins was proven on circumstantial evidence 33 years before the vessels were found which make it possible, namely, the capillaries. A stimulating approach to the teaching of the circulation is one which gets the student to do two things: *deduce the fact of the circulation* from the structure of the heart and other data, and from this *predict the necessity for capillaries* or their functional equivalent. This is what William Harvey did in the 17th century, and it provides an admirable illustration of the method by which science often actually proceeds.

Plan 2: Study of common traits in order of evolutionary appearance. The principle basis to this plan was set forth by Aristotle as the program for his own textbook of comparative physiology, — apparently, however, without a clear realization of its evolutionary implications.[6] The study commences by considering those features which are shared by all living things, including man. For the modern biologist these include, among others, cell structure, metabolism, and self duplication. It then proceeds to consider, stepwise, traits which man shares with progressively more restricted groups. As examples of such traits, we may cite: multicellular condition, division of labor among cells, vascularity, internal skeleton, temperature control, and the ascendancy of conditionable behavior. It culminates with the study of those attributes which are uniquely human or are developed in man to a unique degree. This plan resembles considerably those in use in many conventional courses. It should differ from some of them in the following respect: since a major emphasis of general education is upon the problems and principles of humanity, each new trait would properly be considered to a greater extent in the light of its implications for man, — either as effecting him in some fashion or as analogous to him in a particular way.

Plan 3: The mosaic plan of organization. The term *mosaic* is borrowed from W. W. Charters[7] but used here in slightly modified connotation. The plan is premised upon the admitted fact that different specialists apply different disciplines and techniques to the solution of their problems, even within the limits of a single major field. The course is, accordingly, so arranged that one or more representatives of each category of specialists may pass in review. The student is confronted in turn with the cytologist, taxonomist, physiologist, evolutionist, geneticist, parasitologist, and ecologist. Such a scheme seems open to question, at least insofar as it assumes that considerations which subdivide a field for purposes of professional analysis subdivide it equally well for purposes of presentation on the level of general education. This supposition may be correct but has never been proved. The mosaic plan is sometimes defended as a means of acquainting the student with varieties of professional activity possible within a given broad field as a supposed help to him in the choice of his own career. Its actual benefit for this purpose is, except in special cases, doubtful. The real rigors of professional science are not made clear to the student unless he is somehow brought to the very heart of the activities in which scientists engage. And general education should provide, as an aid in the selection of careers, comprehensive criteria among which the excitement generated in an elementary course would play a possibly less important part than carefully considered aims and the practical outlook for attaining them.

Plan 4: Organization based upon historical principles. This plan is built upon the study of major events in the development of biological thought. It permits many varieties of treatment. The historical events available may be considered as belonging to three groups and it would prove useful to the student to understand the similarities and differences between them. These are: 1) the clarification of specific biological phenomena (e.g.,

[6] See the *De Partibus Animalium* 645, 1-14 and 21-29.

[7] W. W. Charters, "Patterns of Courses in General Education," *Journal of General Education*, Vol. I (October 1946), 53.

the fact of the circulation or the function of a gland); 2) the promulgation of general theoretical propositions (e.g., evolution theory); 3) the introduction of possibly useful methods of interpreting phenomena (e.g., Bernard's concept of an "internal environment," or, of possibly less value, Haeckel's concept of reproduction as an "overgrowth of the individual"). There is a school of scientific philosophy according to which many, or possibly all, scientific concepts, are a result of all three of the foregoing activities. Genes, for example, and protoplasm may be regarded as actualities, as theories, or as conventional interpretations of imperfectly understood processes or things in nature. The historical approach is currently increasingly favored because it provides the possibility of following the scientist through the steps necessary in obtaining an improved idea of something he desires to understand. Incidentally it provides an admirable basis for involving the student in inventive thinking. Mr. J. B. Conant regards the historical approach as possibly the best for giving the citizen a grasp of the mode of action of the scientific growth process.[8] In his paper, he details a method for presenting a typical problem in several stages of its development with special emphasis upon the metamorphoses leading to each new stage. Proponents of "coverage" as a criterion for organization will worry about the great amount of time consumed in the historical presentation of a given topic. It is, however, a widely accepted principle of writers on general education that a thorough consideration of a few problems, with special emphasis upon the methods of their solution, is more desirable than an attempt to keep up with current scientific developments by annual accretions to the syllabus. The argument is that the study and actual use by the student of the methods of the sciences may more or less basically affect his own intellectual methods, whereas much of the information which he amasses is rather quickly forgotten. This argument would appear to hold good insofar as we see to it that the student gets actual practice in the use of the methods he learns. Otherwise we will discover that he can *memorize the method* with the same facility, and much of the same futility, with which today he memorizes the "facts."

Plan 5: Organization based upon the study of a limited number of problems. The possible benefits of this plan were suggested in the preceding paragraph. Carefully chosen, the problems can each provide a basis for the understanding of a whole subdivision of modern biological thought. After the basic aspects of a problem have been clarified, individual teachers and students may pursue it as far forward into its present-day ramifications as special situations suggest. In footnote 9, suggestions appear as to the types of problems which may be used.

Plan 6: Organization based upon an adaptation of content to the skills which it is proposed to promote. As a final plan of organization, we may mention a program which, to the author's knowledge, has not been put to experimental test but which appears to hold significant possibilities. The plan recognizes that general education has as an objective the development of specific competences. These competences may be conveniently classed as formal, methodological, and informational, and any of them could be used as a platform for the organization of a basic course in any science. By formal competence we mean the speed and validity with which the individual is able to think logically or criticize thinking from a logical point of view. By methodological competence we refer rather to considerations involved in attempts to obtain true ideas. Among these considerations may be mentioned: factors affecting the attempt to formulate experience, such as the effect of past experience upon the attempt to formulate present experience objectively; the distinctions between ideational and symbolic formulations (these will be discussed below in connection with laboratory work); and various methods which may be used for verification or evaluation of formulations made on a tentative basis. The major operating rule for this plan of organization would be the arrangement

[8] J. B. Conant, "On Understanding Science," *American Scientist*, XXXV (1947), 33.

and presentation of materials to subserve what some teachers will consider the most desired outcome of the course: i.e., a possibly improved faculty for acquiring and expressing correct notions of things.

It scarcely needs emphasis that the foregoing organizational possibilities are neither contradictory nor mutually exclusive. It is very much to be hoped that during the coming years of experimentation different teachers will weight and combine them in different ways.[9]

WHAT SHALL THE STUDENT READ?

On the matter of textbooks the writer has encountered two quite distinct points of view, both stemming from the concession that, temporarily at least, textbooks are likely to assume a less conspicuous role than they have ordinarily played. It might at first seem obviously desirable to secure a book molded to the special aims and emphases of the new sort of course. Such a book, and several are available, would be expected to employ a methodological as opposed to an "informational" approach, and to focus considerable extra attention on the biology of the human species.

An entirely different point of view is that the familiar type of text, especially one well enriched with conventional reference material, is desirable as a sort of counterpoise to the admittedly experimental treatment which the student will, for a few years at least, receive. This view often appeals to the more experimentally minded teacher, since the more his techniques deviate from convention the harder will they be to match in a ready-made text.

In several schools and colleges it is the practice for students in introductory courses to read original scientific texts. This practice, recommended in the Harvard Report, has already been subjected to considerable experimentation. In one such experiment, in progress at Washington University, the students read, during the course of the year, ten classical papers each of which, when it originally appeared, constituted the opening of a new major area of biological investigation and thought.[10] In another experiment conducted in the college of the University of Chicago, "families" of papers have been assembled, each paper representing an important further step in the development of a special department of investigation.[11]

If original texts are to be used, no greater disservice could be done the student than to hand him these elegantly constructed specimens of scientific writing for purposes of a mere cursory reading. The general result of mere perusal will be

[9] The writer is currently associated with an experiment in which the year's work is based largely on the development of six fundamental problems. The student is first introduced to each of these in the laboratory where he is asked to draw conclusions concerning materials pertinent to an understanding of the problem under study. This is followed up with readings and discussions designed to clarify the material, to acquaint the student with the classical interpretation of the same material and give him some knowledge of the current status of the problem. This is filled out by lectures (two per week) showing the connections of each of the problems to the science of biology as such, at least insofar as this science is of value or interest to the general student. The problems selected for study were: nature and significance of cellular organization; the major modes of nutrition and their interdependence; the methods and meaning of classification (with special reference to plants); adaptation and the origins of individuality for both species and single organisms; the equilibria of the internal environment, especially of man; and analyses of behavior. Premedical students, and prebiology majors were permitted to elect extra work in systematic zoology during the second half-year but were not excused from any of the activities of the general course.

[10] Authors and subjects: Schwann, *Theory of the Cells*; Bichat, *General Anatomy Applied to Medicine and Physiology* (tissues); Pasteur, *Development of Yeast and Alcoholic Fermentation*; Lamarck, *Zoological Philosophy* (his laws of evolution); Darwin, from *The Origin of Species* (from the Conclusion); Harvey, *Motion of the Heart and Blood*; Beaumont, *Observations of the Gastric Juice*; Haeckel, from *History of Creation* (recapitulation); Weismann, *On Heredity*; Aristotle, Selections from his works.

[11] Titles included, in whole or part, in one of the groups of readings used at Chicago: Darwin, *Origin of Species* and *Variation of Plants and Animals under Domestication*; Galton, *Natural Inheritance*; Mendel, *Experiments in Plant Hybridization*; Sutton, *Chromosomes in Heredity*; Morgan, *Sex Limited Inheritance in Drosophila, Heredity and Sex* and *The Physical Basis of Heredity*; East, *A Mendelian Interpretation of Variation that is Apparently Continuous* and *Studies on Size Inheritance in Nicotiana*; Hardy, *Mendelian Proportions in Mixed Populations*; Dobzhansky, *Genetics and the Origin of Species*; Wright, *The Roles of Mutation, Inbreeding, Crossbreeding, and Selection in Evolution.*

a sense of time wasted in distasteful activity. If, on the other hand, they are read with care and discussed with the critical attention which they require, the rewards appear to warrant the time spent. In general, where they have been used in this way and where the instructors were genuinely interested in the possibilities of the approach, both students and staff have considered them valuable.[12]

One of their chief merits exists in the fact that each of them constitutes among other things a system of carefully integrated statements connected in such a way as to lead to a final, fairly simple conclusion of greater or less validity. In this, they exemplify, at least to a considerable degree, the intellectual methods and the precautions which all of us must employ in the solution of problems of very different kinds. Furthermore, they reveal the scientific mind "in the act" and give a much clearer view of it than is possible by any form of indirection. The use of original scientific texts is obviously especially practicable in courses adopting an historical approach to the subject as a whole.

POSSIBLE CONTRIBUTIONS OF LABORATORY EXERCISES TO THE ENDS OF GENERAL EDUCATION

Thomas Henry Huxley, the founding father of the modern biology course, hoped that this subject would help the student to understand himself as a biological system within a cosmological supersystem.[13] His students spent all their laboratory periods in exhaustive morphological studies of 23 different animal specimens![14] It is interesting to speculate whether so great a teacher as Huxley, were he alive today, would select the same means to implement the same educational objective.

There are, at any rate, many other varieties of useful laboratory exercise available and it is usually agreed that the biology course will not effectively omit opportunities for students to handle materials directly. General education does not make this less true than it has always been. We shall here briefly mention a number of possible benefits which may be derived from such experience and their implications for the way in which the laboratory may be conducted.

The principal contributions of the laboratory would appear to include: familiarization of the student with things which he may later recognize and enjoy; clarification of aspects of human biology; practice in the precise formulation of experience; and encouragement of the habit of thoughtfulness about that which the student sees and hears. The first two of these have been extensively considered in various educational books and periodicals. The latter two deserve comment here.

People differ considerably in the extent to which their sensory experience actually engages their attention, i.e., in the extent to which they actively reflect upon that which they observe. The individual for whom sensory experience initiates conscious acts of association or analysis possesses definite advantages, both practical and esthetic, over the one for whom it does not. He possesses the habit of really thinking about what he sees and hears. The objection will be offered that we cannot establish such a habit within the scope of a single course. This is, of course, a relative matter. But even if this hope is a quite impossible one, then it will still be worth while to get the student really to reflect upon something he sees, even if he does this only once or twice. It is something which he may never again be required to do.

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[12] Previously it was reported (T. S. Hall, *American Scientist*, Vol. 35, 1947, p. 16) that forty selected students in an experimental biology course set up for them considered original scientific texts as more valuable than lectures, laboratories, or other reading. A subsequent experiment, involving 450 students, with discussions led by graduate students, produced a much less favorable, but still not unfavorable, reaction to the use of the original scientific texts. This leads us to reiterate that their use is indicated only in those instances where the instructor is genuinely interested in their possibilities and where he possesses the competence to handle them in the way required.

[13] T. H. Huxley, "On the Study of Biology," *Science and Education*, New York, P. F. Collier and Son, 1911, pp. 224-49.

[14] These were: yeast, *Protococcus*, mould, *Chara*, fern, flowering plant, *Ameba*, *Vorticella*, fresh-water polype, starfish, earthworm, snail, squid, mussel, lobster, crayfish, black beetle, common skate, codfish, frog, tortoise, pigeon, and rabbit.

There are a number of kinds of thinking in which students may become involved. They may, for example, be asked to remark similarities and dissimilarities existing among certain materials, and, on the basis of these observations, to discover manifestations of orderliness which these things bear in their relations to each other. For example, they may be expected to observe the qualities which make it possible to arrange phenomena in order, i.e., in classes or in series. The value of such discovery is that it produces the raw materials for speculation as to the origins or implications of the order which the data possess. They set the stage, in other words, for thinking interpretively about what we see.

In a certain laboratory exercise, for example, the students examine the stained chromatin of cells from an onion root tip. They then consider various possibilities for classifying or arranging the various cell types and readily observe that they can be arranged in a definite sequence. Subsequently in discussion they develop hypotheses as to what this sequence may mean: that is to say, they *discover the process of mitosis for themselves*. In so doing they copy a method often used in scientific discovery: i.e., they derive a dynamic concept from a collation of data which are in themselves static. In so doing, they reproduce, in part, the activities of the cytologists who discovered mitosis first.

The foregoing exercise on mitosis exemplifies a procedural rule which has been adopted by many science teachers and which especially applies to the purposes of the general curriculum. According to this rule, the laboratory presents materials in such a way, on occasions at least, that the student will be led, not to corroborate the great generalizations of classical biology memorized in advance, but rather to make generalizations of his own. Where possible, moreover, he should have a chance to implement the maxim of Lord Bacon, viz., that from an hypothesis new particulars should be indicated and these verified by further observation and experiment. A means of doing this is illustrated in the following paragraph.

In a certain exercise, the class was first presented with a set of preliminary data drawn from the writings of two classical investigators of gastric digestion, Spallanzani and Reaumur. The students were then separated into experimental teams of four. Each team held a preliminary discussion in which, first, an hypothesis was agreed upon to account for the data of the classical investigators and, next, experiments were designed for verification of predictions made from the hypothesis formed. This was followed by the co-operative performance by each team of the experiment designed.

For exercises of this kind, the teacher will need to possess a clear idea of the types of hypotheses which he expects the student to erect. Many scientific hypotheses are attempts to account for something observed by postulating the existence of something else, — something either not directly observable or, at any rate, not as yet observed. The student may thus construct hypotheses to account for what he sees in terms of: 1) its value as evidence; 2) its probable response to different variables; 3) its adaptive significance; 4) its unseen causes or effects. Or he may attempt to account for an overt phenomenon in terms of a latent mechanism: e.g., osmosis in terms of thermal diffusion, or nerve impulses in terms of ionic migrations, etc.

The form of the laboratory report. Two common objects of the scientist and the citizen are to acquire and to communicate right notions of things. The difficulties which students commonly experience are: either failure to obtain an idea which corresponds to the thing they are trying to understand; or failure to employ symbols (i.e., in the report) which correspond to the idea they have obtained. It was long customary to require the student to express his idea of something by drawing it. This method has several drawbacks: 1) a correct graphic formulation does not necessarily imply a valid formulation of the object either as a geometrical entity or a biological one; 2) an incorrect representation does not usually reveal whether the error lay in the intellectual formulation of the actuality or in the symbolic formula-

tion of the idea. These criticisms do not eliminate drawing as a helpful procedure under special conditions but they render questionable its use as an exclusive form of report. By using a greater variety of methods, we can involve the student in more precise and meaningful attempts to understand and interpret what he sees. The student may be asked to answer questions which require that he look at the material from a desired point of view. Or he may be advised to develop methods of recording his experience for his own future use. One valuable procedure is to advise the student to investigate his materials with certain things in mind; immediately after the exercise he is tested on his understanding of what he saw and permitted to use his records in the test.

TECHNIQUES OF DISCUSSION

Certain techniques of discussion, as contrasted with lectures, present a valuable opportunity for involving the student in extemporaneous reasoning which may be helpfully criticized by the teacher then and there. This statement assumes competent instructors employing familiar techniques. In particular if, by a method of cross-examination, the student is put in the position of correcting his own errors, he gradually learns to *anticipate these*. The expected outcome is an improvement in the care and precision with which he formulates propositions and relates them to each other. This technique is often erroneously called the Socratic method. In the Socratic dialogues reported by Plato, the argument was usually supplied in the first instance by the teacher. The principal activity of the disciples was merely to disagree or agree. This method implies powers of concentration and habits of intellectual integrity which we cannot assume for the modern student, at least not for the average one. Therefore we substitute a related technique in which, as far as possible the student does the creative thinking. Occasional questions are asked by the instructor as a check upon the progress which it is hoped to make toward the solution of the problem under discussion.

The following exchange occurred in a class recently visited by the author and may serve to illustrate the way in which the method can work.

Teacher: What evidence of evolution does the paleontologist see in the rocks?

Student: He sees the change which has occurred.

Teacher: Would you say that it would be possible to see change where no change was occurring?

Student: No, and, since the change to which I referred was not occurring when the paleontologist was looking at the rock, my first answer was incorrect.

Teacher: Then let's ask the question again: what is the evidence that the paleontologist sees?

Student: (After some thought) He sees certain things best accounted for on the assumption that a change of a certain kind had occurred.

From here the discussion proceeded to examine the terms used in the student's revised answer. Further questions: Exactly what things does the paleontologist see? What qualities of them does he especially notice? What kind of a change are you assuming? How does this assumed change account for the things seen? Is there any other assumption on the basis of which one could likewise account for these things?

The foregoing method is not to be confused with another, superficially similar one in which the student is required by the teacher to formulate a proposition in exactly the way in which the teacher has formulated it in his own mind. The recalcitrant student is egged on by a series of questions which make it more and more plain what he is supposed to say. So little intellectual discovery is involved in this method as to make it of doubtful value to the student.

POSSIBLE USES OF WRITTEN TESTS AND EXERCISES

A currently much discussed question is whether the biology course is to institute specific procedures to help the student acquire improved methods of analysis for use in the solution of problems. Biology offers greater opportunities in this regard than perhaps any other subject but these have been used up to the present only sporadically. The special advantage of biology here is that it embraces

the disciplines of most of the other subject matters and that its materials are, or can be, ones which the student will actually use.

At least four ways lie open for attempting to produce the result in question. Three of them have been commented on already, namely the emphasis of induction and deduction in the laboratory, the critical analysis of carefully selected scientific texts, and discussion methods of a special type. The fourth possibility is the use of written test questions or problems calculated to implicate the student in inferential activities of certain kinds. The construction of such questions emerges from the fact that, in every day life, argumentative writing and speech are ordinarily structurally incomplete. The political speech, the editorial, the dormitory bull-session usually consist in selected propositions whose relevance to the conclusion or thesis can be evaluated only by supplying other essential propositions that the writer or speaker has omitted. The maintenance of intellectual equilibrium in such situations depends largely upon our ability to supply and evaluate what has been left unsaid.

Various experiments have been undertaken in which exercises were developed to assist the student in the acquisition of the faculty for doing this. Among the acts of inference in which the student may become implicated by such exercises are the following: 1) given two premises to state a conclusion; 2) given one premise and a purported conclusion, to supply the missing premise and evaluate the inference as a whole;[15] 3) given a group of statements, to identify those bearing inferential relations to each other.

General agreement on the desirability of such exercises may not be expected from science teachers. The writer has, at any rate, encountered considerable unfavorable reaction to their inclusion in the course. Nevertheless, although valid objections may be offered, experiments of this kind appear to merit encouragement: the constantly renewed hope of education must be the improvement of the mind. By the same token those opposed to this particular practice must be free to pursue the common end by methods which seem to them most likely to succeed. So urgent and so difficult are the goals of general education that, for the time being at least, they must be sought by every available means.

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[15] For example, the following form of question is one of many which may be used:

In the blank before each of the following pairs of statements, write *s* (= sequitur) if, in view of your knowledge of the subject, the second statement follows without qualification from the first; otherwise, write *n* (= nonsequitur).

1) A certain characteristic appeared in all the descendants of the organism in which it appeared first
2) This characteristic was of such a nature as to improve the chances for survival of the organisms in which it appeared

This is a nonsequitur for several reasons; e.g., many nonadaptive mutations are conserved; the trait may have been a somatic modification; etc.

General Education in the Liberal Arts College

BY LUCIUS GARVIN

MOST liberal arts colleges have been attempting, almost out of necessity, to combine within their curriculum two functions. One of these, in the language of the Harvard report, is special education, the intensive study of a particular discipline. The other is general education, which may be described as that aspect of the liberal curriculum which aims at making free and responsible and happy persons, as opposed to training them to competency in a particular field.

Considerable disagreement has arisen (1) as to the legitimacy of this distinction and (2) (assuming that a case for such a differentiation of functions can be made out) as to the proportionate emphasis that should be given each function in the typical liberal arts college. The present paper is intended as a contribution to this discussion.

Let us first inquire a little more closely into the meanings of the terms "general education" and "special education."

There is a tendency to think of the sciences in connection with specialism and to think of the arts in connection with general education. This tendency is, of course, ill-conceived, since no such absolute affiliations exist. There can be, and is, specialism in the arts and there is general education in the sciences. As for the first, witness philology technically treated, or the prosodical aspects of poetry, or the study of color harmony or of counterpoint. As for the second, witness the attempts made in many introductory courses in the various sciences to impart not only facts but their human significance as well. The point is that it is possible to treat any subject from the standpoint of either general or special education. What marks the difference is not the subject-matter, but the way it is handled. An example of the difference may be found in the comparison of, say, Windelband's *History of Philosophy* with Bertrand Russell's recently published *History of Western Philosophy*. In the former, philosophers and philosophical ideas are treated for their own sake, with the rapt concern of the specialist; in the latter, philosophical ideas are evaluated and examined in their living connections with what the subtitle describes as "political and social circumstances from the earliest times to the present day." But to go from the example to the distinction itself, I should say that whenever one treats a subject-matter as one to be explored intensively and exhaustively for its own sake and so far as is possible in isolation from other interests of a practical or general nature, one is specializing; and that when one treats a subject-matter as something having vital and perhaps exciting interconnections with other subject-matters, as something with practical implications and consequences, as something affecting for weal or for woe our individual and common existence, then one is participating in processes of general education.

The chief objection to this characterization of general education is likely to be phrased as follows: While it is true, the objector will say, that we wish liberally to educate the whole man, this is not to be done by discussing values and evaluations and by developing our courses in terms of their serviceability in promoting the good life. Let students formulate their own ideals, if they wish,

as by-products of the educational process, but it is not the college's business to shape their ideals for them. Colleges exist to teach, not to preach. The teacher's job is to present facts and to instruct students how to analyze and organize these facts systematically and honestly. The only *values* the scholar has any right to preach are the values of clear thinking, of methodological rigorousness, of integrity and single-mindedness in the search for truth. The college cannot rightly hold up any other values than these, because to do so is to violate not only its own function of impartial, disinterested examination of facts (to violate the scientific attitude, if you like), but also the democratic ideal of allowing individuals to formulate their own life-opinions uninfluenced by so overwhelming a pressure group as a propagandizing college faculty might constitute — no matter how nobly motivated. For the college to commit itself to any particular set of value judgments and to seek to impress them on the minds of its students is for it to act in a fashion that is dogmatic and authoritarian and that ill becomes an institution that calls itself liberal. Rather it is necessary to preserve liberalism in the sense of free inquiry. And this, it is suggested, may be done, specifically, by interpreting general education as something whose purposes are wholly served by a curriculum consisting of a sum-total of more or less specialistic enterprises appropriately correlated with due regard to breadth and distribution. All that is necessary is to have each specialist teach what he knows, thoroughly and well, and let the chips of idealism fall where they may.

Such a conception of general education will appeal to many, as it does to the writer, as being a very diluted and effete notion of what a general education ought to be. But the argument behind it is not to be tossed off lightly. It can carry and has carried conviction and in some respects is as old as Plato — as, for example, in its insistence on the fundamental importance of sound habits of thought, which is analogous to Plato's placement of mathematics as central in the education of statesmen.

Perhaps the basic issue here is a psychological one. Is it possible, by making men lovers of truth and of clear thinking, to prepare them adequately for efficient participation in life? Are men and women who go forth from college with the machinery, the methodological technique that underlies the perception of relevance, the discrimination of differences, etc., to be regarded as "generally educated"? Have we done for them all that we ought to do? The answer, it appears to me, is plainly, "No." They may be keen of intellect and they may be bursting with systematically ordered facts, and still be utterly wanting in social enthusiasm, utterly devoid of commitment or loyalty, and, what is worse, devoid of desire to assemble their facts and use their intellects for the making of commitments and the adoption of loyalties; they may be unprejudiced, but dead to the world in which prejudices are formed; they may be adept in the experimental methods, but wholly unfamiliar with the significances of the new laboratory they are entering. In other words, they have been trained to think critically, but they have been insulated, protected, as it were, from the experience of, the practice in, critical thinking about social, political, moral, personal issues, for fear that they might be swayed by pulpiteering, unprofessional professors and led into *un*academic, *un*disinterested emotional debauches.

It is perhaps a cliché in some circles that in educating the whole man you educate him emotionally as well as intellectually; though I am sure that in other circles it is not. But cliché or not, it does seem to be a fact that you can't trade thoughts with a number of students three or more hours a week without also trading emotions. If you don't inculcate enthusiasms, you inculcate apathy. The professor does not, as soon as he steps behind his desk, become suddenly transformed into a brain and spinal column, or into a disembodied voice transmitting disembodied facts. He remains very much a whole man himself. In other words, one reply to the "pure intellect" theory of education is that no matter how correct we try to be

about adjusting our intellectual dresses, our emotional slips are bound to show.

I am not to be interpreted, of course, as urging that we reshape our lectures into sermons under educational aliases or that we teach in an atmosphere laden with passion. What I am saying is that there is a place — and it can be maintained that it is a fundamental place — in our educational scheme for giving the student an opportunity not merely to sharpen but to vitalize his intelligence by bringing it to bear on problems of evaluation as well as of fact, or on facts seen as holding significant relations to other facts, on events that are not just events with causes and effects, but events that may be interpreted as tragic or as hopeful, as sinister or beneficent, as beautiful or ugly. Education involves training in open-heartedness as well as open-mindedness, in appreciations and sympathies as well as understandings, in ideals as well as ideas.

This must not be taken as a new Scholasticism. One doesn't have to go the whole hog with Mr. Hutchins, nor, for that matter, with John Dewey, to see that making a student vitally and critically aware of contemporary issues does not mean dipping him into waters that flow in a single current, with a single color, in a single direction. That is neither desirable nor, ordinarily, possible. Certainly in many institutions the waters flow in a thousand different directions at once, and are turbulent and perhaps turbid, but at the very least this may be taken as a sign of life, and if, in this respect, the college is a microcosm mirroring the universe, it may be, from the standpoint of the student, all to the good.

If the above considerations are valid, it follows that special education cannot, simply by calling on all its members to form even the most solid phalanx of integrated wholeness, accomplish the purposes of general education. The argument of the specialist, which I have identified with the "pure intellect" theory of education, has taken many directions. One form, which I cannot here attempt to discuss, denies the necessity of ever making value-judgments of an extra-scientific nature. The cure for knowledge wrongly applied, it is held, is simply more knowledge. This view is the modern positivistic version of the old Socratic doctrine that knowledge is virtue, that ignorance is the root of all evil. I mention it here, not to refute it, but only to observe its bearing on the topic under discussion.

Another argument of the specialist, however, requires some comment. That is the argument that general education compromises academic standards by dragging the process of teaching down from respectable Ph.D. levels to the level of the "hot air" course. Only experience can demonstrate the truth or falsity of this generalization, but for my part, I must say that it does not seem to me to be true. There is no reason why a "general course," if we wish to call it that, cannot be rigorous, cannot be tough, and cannot be handled with every regard for the principles of exact, systematic inquiry.

The opposite opinion, I suspect, arises partly from the notion that general education is education in what is so general that it is nothing in particular, that it consists simply in knowledge, not knowledge of any particular something. This is, of course, nonsense. General education is about "somethings"; and about the same "somethings" that special education is about. But it treats these somethings differently: not loosely or chaotically or vaguely; less intensively, no doubt, less exhaustively; and with less concern to reduce them to their ultimate internal constituents; but more broadly, more dramatically perhaps, more humanly, with interests in their relationships to other somethings and in what those somethings taken together can mean to the student as a consumer, a husband or wife, a soldier, an employer or a worker, a music lover, a citizen of a nation or of a planet.

I am aware that this sort of thing sounds decidedly amorphous to the Ph.D. mind that loves its facts and its filing cards and its pigeon holes. But I do not believe it is necessary to play traitor to the scholarly ideal whenever one traffics in general education.

In fact, it is altogether possible to conceive a curriculum in which general education should play the predominating role, without a single course — introductory, capstone or otherwise — in general education, as such, being given. Many courses in all departments could be taught with general education infusions that would set the tone of the entire educational process.

In saying this, I am assuming that in most liberal arts institutions the general education aspect should, in some sense, predominate over that of special education. In what ratio — three parts to two, two parts to one — can scarcely be said. Obviously, no calculations are possible where we are dealing with intangibles — with attitudes and emphases, with things that are, to a great extent, accomplished, not by course title or syllabus, but by parenthetical comment, revealing gesture, the tone of conviction or indifference, that form the chiaroscuro of the teacher's artistry.

In concluding, let me say that I have not supposed myself to be urging anything revolutionary or devastating. Possibly I have only been expressing — bringing to the level of conscious awareness — what we have been doing anyway. But there is danger of losing our reflective self-consciousness in these matters. Perhaps all colleges ought to have — what the Harvard report suggests for Harvard — a Committee on General Education, to guard the interests and preside over the functions of general education on their campuses.

Let me add, as a kind of protective postscript, that because I have thought it necessary to defend general education at such length, it should not be concluded that I am unaware of the importance of special education. I love my filing cards and pigeon holes as much as the next man. Specialism is important as a legitimate interest on its own account, in its pre-professional functions, and in the actual service it renders in the achievement of the general goals of liberal education. Any department that fails to provide for its students courses that will demand of them systematic, painstaking, scholarly experience in the kind of inquiry that characterizes the university-graduate-training-to-come is simply derelict in its duty. In the sciences, most advanced courses will be of this sort. In the arts, many advanced courses should be of this sort. Always it is possible to utilize seminars, reading courses, special research, and perhaps honors work, for specialistic purposes. Certainly it would be, comparatively, as catastrophic for a student to enter graduate school with no conception of rigorous, systematic research, as it would for him to enter life without any conception of human values.

The Humanities Program in the College of the University of Chicago

BY RUSSELL THOMAS

A BRIEF review of the principal characteristics of the plan of the College of the University of Chicago will provide a helpful background for an understanding and appraisal of the Humanities sequence which forms a part of the college curriculum. (1) The curriculum is a four-year curriculum leading to the Bachelor of Arts degree. (2) Students who enter the College in the first year of the program are approximately of the academic age or level of high school juniors and by the time they have completed the program they are approximately of the academic age or level of college sophomores. (3) To complete the program of the College, students must pass satisfactorily fourteen comprehensive examinations. Three of the examinations are in the area of the Humanities; three are in the social sciences; three in the natural sciences; two in English composition; and one each in mathematics, a foreign language, and in the inter-relation of the fields of knowledge. The last named is normally taken by the student during his final year of residence in the College. (4) Students who are admitted to the College are placed in the program on the basis of their performance on placement tests taken during Orientation Week of their first year of residence in the College. All students must take the placement tests upon entering the College. High school and college credits play no part in determining their placement in the program. A student who shows evidence in these examinations of possessing the appropriate knowledge and skills in any subject matter area may be judged to have satisfied in part or entirely the comprehensive examination requirements in that area. On the other hand, a student who enters the College after graduating from high school or transferring from another college, may be required to pass comprehensive examinations normally taken by first- or second-year students. (5) All comprehensive examinations are administered by an independent Board of Examiners. The courses in the curriculum are designed to prepare students for these examinations. The courses are one academic year (three quarters) in length, and a comprehensive examination is given at the end of each course. The grading of all examinations is done under the supervision of the Board of Examiners and without knowledge of the identity of the student. An instructor, therefore, is never the final judge of his students' grades. Only in those courses normally taken in the first year of the College is class attendance required. A student may be advised to prepare himself to take all or part of a course as preparation for an examination, but he may register for that examination whenever he feels that he is adequately prepared for it. Thus the College allows the student a high degree of freedom in choosing how he shall prepare himself to meet the standards which signify the attainment of what the faculty prescribes as a good general education.

II

The Humanities sequence in the College consists of three courses, each of which extends through one academic year and prepares the stu-

dents for the comprehensive examination which is given at the end of the course.[1]

Before I undertake a detailed account of the sequence, it will be appropriate to explain the principles which control the organization of the courses. Several colleges offer general courses in the humanities, but the organizing principles of these courses vary so greatly that a brief examination of their differences may be useful. Two general plans, each of which has numerous variants, are popular. One of these takes the history of civilization, usually western civilization, as the core subject matter. The activities of man and the products of his arts and sciences are related to the history of culture. Painting and architecture, poetry, philosophy, religion, and science assume significance as evidence of the intellectual character, the social and institutional life of a people or an age. The study of the influence of a particular culture on subsequent periods, including our own, rounds out this basically historical approach to the humanities. The second of these organizing principles consists of a series of arbitrarily selected themes which are developed through the study of literary works selected because of the relevance of ideas expressed in them to the themes. A novel, a poem, and a treatise on moral and political philosophy may each prove equally useful in the study of a theme such as "Freedom and Authority."

No one can dispute that both of these approaches have their particular values. The products of the arts are truly parts of our culture and are therefore valid evidence in our interpretations of the past and the present. They may also be useful as statements of ideas about the nature of things. But whether we study the arts as historical evidence or as expressions of philosophical insights, the center of interest lies outside of the work itself, — in the past which they illuminate or the reality or truth which they may be thought to express.

Another approach to the humanities concerns itself with the products of man's arts as kinds of constructed things. This approach recognizes that there are many kinds of values to be derived from the study of the arts. It recognizes, for instance, that the value of a work of art viewed as scientific datum is not the same as its value viewed as a kind of created thing designed for certain ends. It recognizes that a work is subject to interpretation as more than one kind of construction. *Richard II* may be interpreted as a tragedy and it may be interpreted as an account of a period in English history. The probability that it may have greater values when viewed as a tragedy does not preclude consideration of its values as an interpretation of the character of one of England's kings. An approach, however, which makes such distinctions recognizes that the disciplines involved in one mode of interpretation differ from the other. Such an approach necessarily makes particular works of art the center of interest in all study. Since this principle underlies the organization of the Humanities sequence at Chicago, it may be well to review some of the arguments which have influenced us in adopting it.

The study of the products of the arts is not the province of the humanists alone. It is obvious that all of the arts are useful to the social and the natural scientists. The plastic arts offer useful objects of study to the archeologist and the anthropologist. *Oedipus* is ample testimony of the importance of psychological values which a poetic work may offer to the psychiatrist. The *Areopagitica* is of theoretical as well as historical interest to the political scientist. Folk music, like folk literature and primitive art, provides data to the sociologist. We cannot, therefore, adequately define the humanities in terms of a subject matter, namely the products of men's arts. There are, however, values to be derived from these works of art which are not the professional concern of the scientist. The values of *Oedipus* as a tragic poem, of the *Areopagitica* as an example of the art of

[1] In the summer quarters of 1946 and 1947, a restricted group of students was permitted to take the entire year's work in either the second or third years of the sequence. They were expected to concentrate all of their time on the one course.

rhetoric, of Negro folk music as songs are the concern of the humanists, not the scientists. For these are the values which come from understanding the arts as arts, i.e., as created or constructed things. The study of the disciplines by means of which these values are realized is often neglected. Students are, for example, encouraged to study the history of civilization, but are not instructed in the skill of interpreting historical constructions. Through the study of disciplines appropriate to the interpretation of poetic construction, students may discover those values in drama, fiction, and lyric poetry which are quite distinct from their capacity to express general truths or to inform us about the past. These values lie in the recognition of works of art as complete in themselves and capable of giving their appropriate kinds of pleasure. Unless such disciplines are taught, the study of the poetic arts tends to drift into a confused discussion that fails to distinguish among several kinds of values. I would say that a kind of fraud had been perpetrated upon the student who, under the assumption that he is studying lyric poetry, is led to discuss the *Ode to a Grecian Urn* only as a reflection of English romanticism of the 19th century or to consider its value only as a universal proposition about Truth and Beauty.

III

The Humanities courses at Chicago direct attention, therefore, to the products of the arts as constructed things. More specifically, the objectives of the sequence are: (1) to acquaint the student with a considerable body of the best works in the fields of literature, music, and the visual arts, (2) to develop skills in the arts of interpreting these works, and (3) to develop an understanding of some of the philosophical principles upon which critical judgments and evaluations of works of art are made and to develop some competence in the application of these principles to particular works.

Each course contributes to the first of these objectives, since each year extends the student's acquaintance with particular works. Humanities 1 introduces the students to the visual arts, music, and poetic literature (drama, fiction, and lyric and narrative poetry). Each of these arts is allotted approximately equal portions of time. The students at this level have only an elementary knowledge of the arts; many of them have no knowledge at all of the basic elements of the visual arts and music.

The course meets five hours each week, one hour of which is devoted to a general lecture which provides an outline or demonstration of the nature of the week's discussion problem. The remaining four hours are devoted to discussion. The discussion groups average from twenty-five to thirty students, which is the usual size of discussion groups in all of the courses. Within the limits of time allowed during the year, we expect the students to form an extensive acquaintance with all of the arts. The list of works in each of the three arts which the students study in this year is much too long to include in this account. Each class room is equipped with projectors and screen, record player, and piano. Extensive use is made of the current exhibits at the Art Institute and local galleries. A workshop-studio under the direction of one member of the staff is open to all of the students who wish to learn more about the materials and form of the plastic arts through working with engraving tools, clay and stone, and the various media of painting. To supplement the musical works studied in class, extracurricular listening hours are provided under the guidance of staff members where students may freely discuss problems about music which they do not fully understand. Works listed for supplementary study may be played also during the listening hours. Attendance at certain concerts is required. During the course of the year, therefore, students have the opportunity of forming a very extensive acquaintance with the best works of music and the visual arts, while at the same time they are reading many poetic works.

The method of instruction is to present comparable aspects of each of the arts in sequence.

By way of introduction, the students are directed to consider some of the relations of the arts to the natural world. This problem permits the raising of questions about the literal representation of natural objects and about abstraction and symbolism in the arts. The discussion takes account of some of the functions which are unique to each of the arts. The following topics provide the sequence of problems which fill out the year's work:

Elements and Form in the Arts
External Factors as an Influence on Works of Art
Types of Art Forms: Principles in terms of which they may be differentiated
Tradition in the Arts: The growth, elaboration, and change of art forms
Contemporary Trends in the Arts

In the first of these topics, Elements and Form in the Arts, the students study the organization of the basic visual elements of color, line, volume, mass, in a selection of paintings, sculptures, and architectural works. This is followed by a study of some hymns and folk tunes in which the meaning and use of tone and its organization in terms of melody, harmony, rhythm, etc., are explained. The study of two or three dramas then directs attention to diction, plot, and character as basic elements in an imaginative narrative.

By means of the second of these topics, the student is shown how the subject matter and the function of the several arts are often made intelligible through knowledge of particulars external to the work itself, as, for example, the manner in which the religious needs of a people may serve to explain aspects of a cathedral or temple.

The study of types provides an introduction to the principles which differentiate types of dramatic and lyric verse, media of painting and prints, and kinds of musical compositions.

The study of Tradition in the Arts is not an attempt to give a history of the arts. The intention is to enable the student to see that the particular forms of each of the arts are themselves subject to change and growth. The flexibility of forms and the emergence of new conceptions of function are studied as factors which are significant in the understanding and appreciation of the arts.

Each member of the instructional staff directs discussion sections in all three of the fields of art. We feel that the study of the arts is better integrated in this way. The staff is composed of instructors who have had special training in at least one of the arts, and all of the instructors have a genuine interest in and sensitivity to all of the arts. By means of weekly staff meetings, the specialists in each area educate the other members of the staff. If our theory of a general education is sound, if educated men and women should have at least an elementary knowledge and appreciation of the arts, it does not seem unreasonable to believe that a body of teachers can be found or trained who have both sufficient interest and competence in the arts to teach them.

Humanities 2 seeks to develop competence in the arts of interpretation needed for understanding works of history, rhetoric, drama, fiction, and philosophy. While the area of study is thus narrowed to literature, it includes forms not studied in Humanities 1, and the study is much more intensive. In proportion to the time available the amount of reading required in Humanities 2 is less than that in Humanities 1.

The course meets four days each week. One hour is given to a general lecture and the remaining three to discussions. The discussions are based upon the student's reading of particular assigned works. During the study of historical writings, the students will read three or four selections from the works of historians such as Herodotus, Thucydides, Tacitus, Gibbon, Toynbee, Buckle, Burkhardt, and Taylor. The lectures are planned to aid the students by giving them essential data about the historical background of the works read, and demonstrations of methods of analyzing passages. For example, a series of three lectures on rhetorical writing might deal with (1) a historical account of theories about the art of rhetoric, (2) a demon-

stration of a method of analyzing a rhetorical text, (3) an argument for the utility of the study of rhetoric for the modern student. Approximately eight weeks is given to the study of historical writings, three to works of rhetoric, eleven to drama and fiction, and nine to philosophy.

The critical approach employed in the study of the texts is, at first, strange to the average student. Confronted with the text of *Herodotus*, he supposes that he is expected to master the narrative and that he will be tested upon his ability to recall in detail the account which he has read. When, therefore, he finds that he is asked to state how Herodotus' aims have determined the scope of his narrative, the selection of details, and the organization of the work, he finds that his preliminary reading was not adequate for the task. Formal elements, which occur in all historical writing, are better understood when he is led to investigate the principles of causation employed by Herodotus and the tests by which he validates some parts of his evidence and rejects other data. Parts of Herodotus' narrative offer an opportunity for raising distinctions between the functions of historical and epic narrative. The several texts have been selected with reference to their usefulness in demonstrating the essential elements of all historical writing as well as different methods of organizing an account of the past, different theories about causation, and different conceptions about the usefulness of the study of the past.

Many of our students will make the study of history a part of their formal education. All of them will read historical literature in the future if they read at all; for a great deal of journalistic literature is, in fact, history. The surveys of civilization offered in colleges are themselves interpretations or constructions of the past. The chief dangers of surveys for the inexperienced student are (1) that they must perforce be very broadly generalized constructions, (2) that commonly they are so presented that the student fails to distinguish between events and interpretations of events, and (3) that they seldom give students criteria for evaluating these interpretations. Study of the art of historical interpretation seems, therefore, to be a useful foundation for the study of the past.

The study of rhetoric is perhaps even more unfamiliar to most students than the study of historical writing. Given a piece of persuasive literature, the student will tend to look for the conclusions of the author and argue for or against them as his own opinions may direct. Our effort is to direct his attention to the *arts* of persuasion. Through such models of deliberative rhetoric as Milton's *Areopagitica* and selections from the *Federalist* we raise questions about the manner in which the author adapts his arguments to the character of his audience, the character which he gives both to himself and to his audience, the relationship of diction or "style" to the effectiveness of the argument, and the logical structure and the rhetorical ordering of arguments. In a democratic society, where the deliberations of free citizens are assumed to play an important role in determining the courses of political action, the study of the arts of persuasion would scarcely seem to need justification as part of a liberal education. The prevalence of bad and dishonest practitioners of the art is merely an additional argument for its study and proper use by honest men.

In the teaching of drama and fiction, our primary concern is to present these types as complete and self-contained works of art. I quote a passage from the syllabus of the course.

> Fiction and drama differ from historical and philosophical writing in that they do not purport to be accounts of anything existing outside of themselves. Many individual works, certainly most of those generally considered to be great, do convey what seem to be true insights into human life and character, combining (as some critics would have it) the particular truths of history and the universal truths of philosophy. Indeed the greatness of these works depends in no small degree on their embodiment of these kinds of truths. Yet Shakespeare's Hamlet is not a historical character as he is presented in the play, and his philosophical remarks possess their maximum truth or force only in the fictitious situation imagined by the dramatist. . . .
>
> Accordingly, the primary analysis of an imaginative or poetic work does not treat it as a historical, philosophical, or rhetorical statement of its author; but assuming it to be a self-sufficient work of art, seeks to investigate its nature as a created thing. We might begin, therefore, by observing

that works of drama and fiction can best attain their proper self-sufficiency only if they are so unified that nothing can be taken from them without setting up a feeling of incompleteness, nor can any thing be added to make them more complete. In other words there must be in an imaginative work some unifying or organizing principle which determines what must be included or excluded, some essential principle which makes the work a self-sufficient whole. In one sense the whole task of analysis of drama and fiction consists in discovering this organizing principle and in understanding how everything in the work is related to it and accounted for by it.

In making this approach to poetic constructions we do not mean to discourage students from employing other modes of interpretation. On the contrary, the maximum values to be derived from any work can be achieved only as the student knows how to bring to bear upon it all of the arts of interpretation. The solutions to moral issues offered in a novel such as *The Brothers Karamazov* may have great value to the modern reader, nor should their study be neglected. It should be understood, however, that an analysis of their general validity does not lead to an understanding of their artistic function in the novel.

The study of philosophical texts leads to the development of those skills by which the validity of general propositions about the nature of things may be tested. The conclusions of philosophers are usually of great interest to students, who like to discuss and test them in the light of their own opinions and experience. The first task in training the student in making philosophical interpretations is to direct attention from the conclusions to the premises upon which the arguments rest. The readings have been chosen in part for their usefulness in demonstrating different dialectical methods. Students should know some of the great concepts about the nature of knowledge, virtue, justice, etc., but it seems to us less important that they should begin their study by determining which concept is right than they should discover how the authors of these concepts have defined their terms, what initial assumptions they have made, and in what manner they have developed an argument.

Humanities 2 might best be described as a course giving intensive training in the arts of reading. For pedagogical reasons it seems best to exercise each type of skill initially on the kind of work that will be most rewarding. It must always be remembered, however, that great works yield readily to more than one kind of interpretation. The good reader will make use of this fact.

Humanities 1 and 2 have established certain definitions of the imaginative arts, and within the framework of these definitions, the students have discussed the excellences and faults of the works they have studied. The final course in the sequence, Humanities 3, presents a new problem to the student. It recognizes that there are different conceptions of the functions of the arts and that the different kinds of evaluative judgments which we make rest upon our personal convictions about such matters. The course begins by asking the student to examine the philosophic principles which underlie some of the common critical approaches to the evaluation of the arts. To this end, the first part of the course is devoted to a study of several critical works which establish different but widely held theories about the nature of the arts and criteria of judging them. A representative list of the kinds of texts studied includes:

Aristotle, *Poetics*
Plato, *Phaedrus*
Sidney, *The Defense of Poesy*
Hume, *Of the Standard of Taste*
Lessing, *Laocoön*
Reynolds, *Discourse XIII*
Taine, Introduction to *History of English Literature*
Arnold, *The Study of Poetry*
Pater, *The School of Giorgione*
Bukharin, *Poetry*

The student is expected to analyze the argument of each treatise, observing the ends toward which each inquiry is directed, the assumptions underlying each argument, and the kinds of proof employed. The examination of any one of the treatises may also lead to the raising of such questions as the following:

1. Is a work of art known and judged in terms of its reference to something external to itself? If so, what is that external thing, and by what argument does the critic demonstrate the relationship?

2. To what extent is a knowledge of the artist essential in judging a work of art? Is the author treated as an intuitive genius, or as the product of social forces which he consciously or unconsciously represents, or is he treated in any other discoverable terms?

3. Is a work of art treated as representative of a species of created thing, whole and complete in itself, producing effects appropriate to its species? How is its wholeness or unity known and how are its proper effects known?

4. Is a work of art known and judged in terms of its effect on its audience? Are any criteria imposed upon audiences which qualify them to judge? Are any absolute criteria imposed upon the works of art or do the values of works vary with the audiences?

The purpose of this part of the course is to give the students an understanding of principles which will make them more aware of their own critical processes. The making of evaluative judgments is a commonplace, but the average person does not examine the assumptions upon which his opinions rest. If the first part of Humanities 3 serves its purpose it should lead the students to examine their own criticisms. We hope it will drive some of them from approaching all art from a single point of view to which they cling with dogmatic tenacity. We hope, also, that it will discourage that absolute relativism which regards the values of all art as subject to the taste of each individual which is neither better nor worse than that of another.

The second part of the course, therefore, invites the students to make their own critical analyses and evaluations of particular works of art. The students read a selection of contemporary dramas, novels, and lyric poems.[2] The students are expected to make clear the critical position they adopt in the judgment and their reasons for adopting it. Written exercises are considered in class, and the students discuss the assumptions underlying the evaluations of their fellows. The works which are selected for study have been chosen because they seem likely to provoke many different critical approaches. Typical of the novels are: *Bread and Wine, Swan in Love, The Age of Innocence, The Grapes of Wrath*; of the plays: *Winterset, Hedda Gabler, Six Characters in Search of an Author, The Sea Gull*; of the poems: Bridges' *Nightingales*, Eliot's *Love Song of J. Alfred Prufrock*, Yeats' *Among School Children*, Frost's *Death of a Hired Man*.

IV

I shall speak briefly in conclusion about the comprehensive examinations because they play such a very important role in our program. Since we are concerned with training students to acquire skills necessary to understand and to evaluate works of art, our primary concern is to test for the acquisition of the skills rather than for the power to recall the content of any works studied or an instructor's interpretation of them. Consequently at least fifty per cent of all examinations in each course is based upon works which the students have not discussed in class. In Humanities 1, the students hear music and see pictures on the examination which they have had no previous opportunity to study. In addition they will be tested on literary works which have been assigned for supplementary reading but which have not been discussed. At least a third of the required reading in Humanities 2 and 3 is not discussed in class. Success in training students to use analytical skills can only be measured by their power to employ those skills independently. On the comprehensive examination for Humanities 3 in June, 1947, three of the six hours allowed for the examination were devoted to the outside readings of

[2] In the coming year, 1947-48, we shall try two experimental sections, one of which will direct its study of practical criticism to works of plastic arts, the other to music. Practical limitations alone have prevented us hitherto in extending the study of these arts beyond the first year. It is our hope that we can remedy this defect in the near future.

the last quarter of the course. The students were, of course, informed in advance of the time distribution which they might expect.

Insofar as ends are concerned, I should imagine that one might expect but little change in the near future in our program. The staff generally is wholeheartedly committed to the principles of a general education. We are agreed that the proper approach to the study of the humanities is to study the works of arts themselves and the skills involved in their understanding and appreciation. The staff is, however, continuously critical of its own efforts. The means to our ends are constantly subject to revision. While we are engaged in educating the students, we are also engaged in educating ourselves as teachers of a liberal education.

The Humanities and the Idea of Man

BY BERNARD PHILLIPS

AMERICAN education has for some years now been searching its soul. Neither contented with its accomplishments to date nor wholly certain of its aims, it is nevertheless committed to a renovation of its program and is in process of launching many experimental ventures. There is a general feeling that the veterans on the campuses present a magnificent opportunity for doing something towards shaping the future. There is also the more or less conscious realization that the future of the democratic ideal of education itself lies in the balance.

In this period of educational ferment one of the most widely discussed issues has been the question of the role of the humanities in education. The protagonists of the humanities, after years of relative quiescence, have lately rallied their forces and have taken the offensive with enthusiasm and vigor. The partisans of scientific and vocational education were initially taken aback by this unexpected resurgence, but they have now also marshalled their hosts and are furiously giving battle to the enemy. The final outcome of the struggle is still undetermined, but it appears that the humanities have won some ground and have thereby gained, at least temporarily, a new lease on life. One school after another is announcing a new humanities program, and many colleges are setting up divisions of humanities. To be sure, as we are carefully reminded by college catalogs, these new courses have been "vitalized" and "functionalized"; they are not merely "antiquarian" but rather effect an "integration" of the humanities with modern life. All this is understandable as a necessary concession to progressive education, but at the same time it makes it clear that the colleges are recognizing and are coming to terms with the trend in the direction of the humanities.

The current enthusiasm for the humanities derives a part of its impetus from the observed consequences of the Nazi educational experiments and from the general results of the German system of education of the last century. Germany was the first country to make a sharp distinction between liberal and technical education and to give the major emphasis to the latter. The results of this devaluation of liberal education became evident in the very first stages of the Nazi regime, and as Hayek has remarked:

> . . . perhaps no other country provides a better illustration of the effects on a nation of a general and thorough shift of the greater part of its educational system from the 'humanities' to the 'realities' than Germany between 1840 and 1940.
>
> The way in which, in the end, with few exceptions, her scholars and scientists put themselves readily at the service of the new rulers is one of the most depressing and shameful spectacles in the whole history of the rise of National Socialism. It is well known that particularly the scientists and engineers who had so loudly proclaimed to be the leaders on the march to a new and better world submitted more readily than almost any other class to the new tyranny.[1]

The Nazis in their turn continued the century-old trend of German education and valued higher education exclusively from the point of view of its contributions to technology. The function of

[1] F. A. Hayek, *The Road to Serfdom*, Chicago (University of Chicago Press, 1944), p. 190.

higher education in the new order was not to be the nurture of souls, but the production of a corps of technical experts. And so,

> These self-appointed custodians of Kultur treated the cultural mission of higher education with utter contempt, but bestowed high praise on the universities and institutes of technology for their scientific achievements.[2] . . . The modern German university has thus become essentially an institution for the training of specialists in various subject-matter fields and professions. No pretense is made of giving a liberal education.[3]

The success of the Nazis in turning out masses of soulless automata was both impressive and frightening. "Faceless Fritz," the finished product of a technologically oriented educational system, provided an object-lesson for all democratic educators, and it was natural that many of them should react by joining the ranks of the crusaders for the humanities. The new gospel which they strove to propagate was that science and technology without the humanities tended to be brutalizing, and that the humanity of the technician was liable to atrophy without the saving grace of a humanistic supplement to his training.

The concrete argument for the humanities which is provided by the spectacle of German education commands attention, but it would be unwise to expect that it will of itself lead to a permanent re-establishment of the humanities. It is far from clear that the war-inspired enthusiasm for the humanities has been accompanied everywhere by a commensurate understanding of their real meaning and of their intimate connection with the human enterprise. There are numerous and potent influences in the modern world which are antagonistic to the humanities, and so long as there is lacking a real understanding of the role of the humanities, and in so far as the current trend towards the humanities represents merely an emotional reaction to the educational practices of our late enemies, the future of the humanities remains precarious. As the war recedes into the past, and as economic conditions and industrial developments put an ever greater premium upon technical training, the humanities will be able to hold their own only if they are supported by a widespread recognition of their indispensability which is grounded on a real comprehension of their nature and philosophical presuppositions. An explicit recognition of the philosophy underlying the humanities is hardly in evidence in any of the discussions of the subject, and a clear statement of this philosophy is what is most needed to make these discussions significant. For at bottom, the problem of the ultimate status of the humanities is a problem in philosophy and not primarily a problem in curriculum construction. The real issue concerns a conflict between two ultimate points of view on human nature; the debate is not merely over the question of the desirability of adding another set of courses to the curriculum. To be for the humanities in a significant sense is to stand committed to a philosophical position.

The philosophical issues come to the fore as soon as a serious attempt is made to define the meaning of the humanities and to indicate their relations to the other areas of human knowledge. The viewing of the humanities as a significant field of knowledge immediately precipitates the question of the precise nature of this knowledge and of its distinction from scientific knowledge. The problem of understanding the essential character of the humanities is not to be disposed of by merely pointing to the several disciplines which traditionally have been conceived of as constituting the humanities, for such a listing would not of itself be an answer to the more general query about the nature of the humanities nor would it explain why precisely these fields and no others are to be included. Is psychology one of the humanities? If not, why not? What of the social sciences, and in particular, what of anthropology, "the science of man"? The humanities are concerned with the human, but what is the manner of their concern? How are we to differentiate it from the concern which many of the sciences have with the human? What additional contributions to the knowledge of man may be expected from the humanities over

[2] Paul R. Neureiter, "Watch the German Universities," *Journal of Higher Education*, XVII (April 1946), 171.

[3] *Ibid.*, p. 178.

and above the knowledge yielded by the sciences of human anatomy, human physiology, human ecology, human psychology, sociology, etc.? Do the humanities have a legitimate cognitive status — are they fields of "knowledge" — or do they serve merely as a kind of emotional tonic? Do the humanities represent only a primitive stage of conjecture which will inevitably be superseded by a fully developed science of man, or do they function as an independent source of truth about human life? These are questions which are not resolved by the dictionary definitions of the humanities as "The branches of polite learning, esp. the ancient classics; belles lettres; sometimes secular as distinguished from theological learning." These larger issues, on the answers to which hinges any ultimate decision as to the role of the humanities in education, can be settled solely within the framework of a general philosophical inquiry into the nature of man and the modes of his knowledge.

The humanities are today contrasted primarily with the sciences. This has not always been the case, for when the term first came into being during the Renaissance it was used in opposition to theological learning. The story of this gradual shift in the meaning of the word is a fascinating chapter in the history of ideas, and it is correlated with a parallel shift in the meaning of the term "humanism." Ideally, humanism as a philosophy of life occupies a position midway between naturalism on the one hand and supernaturalism on the other, though under varying historical circumstances it has allied itself with one extreme or the other. When it is defending its domain against an extreme other-worldliness, humanism emphasizes the promise and splendor of this life, and the ability of man to organize this life and to achieve well-being without any superhuman aids. When it is being attacked by an expansive naturalism, then humanism shifts its forces to defend the claim of man's unique status, and argues that man stands apart from nature and is a creature of peculiar powers and dignity, the law of whose being is not simply the law of nature. The humanist living on "this isthmus of a middle state" maintains a precarious independence in the face of the rival imperialisms which alternately threaten to engulf him, and it is this fact which accounts for the historical alternations of emphasis in the meaning of humanism. Humanism was primarily anti-supernaturalism during the first portion of the modern period, for it was then waging its war of independence against theologism. Having achieved a victory on this front, it turned to find itself increasingly menaced by naturalism and scientism. The development of the sciences of man in the nineteenth and twentieth centuries represented a persistent effort to apply the methods of science, so preeminently successful in the conquest of nature, to the elucidation of human life. This attempt to assimilate human nature to nature evoked a divided response from the humanists. On the one hand were those who still saw in supernaturalism the chief enemy, and who felt that a resurgence of the threat from that direction was imminent; they counselled an alliance with naturalism and a focussing of all efforts on the permanent vanquishing of supernaturalism. On the other hand were the humanists for whom naturalism was a more serious menace to the autonomy of the human, and these were not averse to an alliance with the recently defeated supernaturalism. As a consequence, humanism today finds itself in a state of civil war with the lines of battle drawn between the anti-naturalistic humanists aided by the supernaturalists and the anti-supernaturalistic humanists fighting alongside the naturalists. Some would see in this situation the implication that humanism is a position of unstable equilibrium, and would maintain that in the last analysis one is always called upon to choose whether one will be numbered with the naturalists or with the supernaturalists. However that may be, it needs to be emphasized that "humanism" is at the present time a label attached to two different philosophical positions.

The trend towards the humanities in contemporary education needs to be viewed in the context of the larger reaction against naturalism as a phi-

losophy of human life. This reaction has taken many forms in modern philosophy; Idealism, Bergsonism, Phenomenology, Neo-supernaturalism are all varieties of it, and Existentialism is its latest phase. What all species of anti-naturalism assert is the unique status of man within nature; what they all deny is that science is an adequate instrument for the elucidation of the total human situation. That in some respects man may fruitfully be considered as of a piece with nature is perfectly clear, for he exists on more than one level, and certain aspects of his behavior are subsumable under the general laws of nature. The sciences are concerned with man just in so far as he is a part of nature and a member of the causal order. But so far as the natural (i.e., the causal) dimensions of human life are not exhaustive of its full reality, to that extent the interpretation of the condition of man demands another approach than the scientific one. The humanities are precisely the study of man *qua* man — this is their most general philosophical definition. They are the media for illuminating the meaning of human life as such. The sciences, when they direct their attention to man at all, are not concerned with man *qua* man, nor do they view human life as it is concretely lived. They touch only upon abstracted aspects of the total human situation; they are interested in man *qua* collection of electrons, or in man *qua* physiological system, or in man *qua* system of reflexes and habits. But if it is the case that human life is a whole which has a meaning not definable simply in terms of its parts, then it must follow that the analytic methods of science can not contribute significantly to the understanding of human life in its integrity. If the life of man, though it has natural conditions and antecedents which are proper objects of scientific investigation, is a unity of a different order than any found in nature, then the humanities which seek to grasp life in its wholeness may legitimately claim to add to the knowledge of man.

The sciences address themselves to man as an *object*. They regard human life as a complex phenomenon analyzable into simpler components which are its ultimate explanation. From the point of view of science, human life is a resultant; it is put together from without, it does not constitute itself; any account of it must be given in terms of the categories of cause and effect. The world of science contains causal links, but no acts and no agents; the language of science, purified of all dramatic categories, is admirably fitted to state the inter-relationships of neutral events, but cannot express human life as it is lived. Science is by its method designed solely for exploring the existence of objects, and when science is generalized into a metaphysics there results the materialistic thesis that the existence of objects is the sole mode of existence.

The humanities, on the other hand, view man not merely as an object conforming in some respects to the laws of nature, but primarily as a *subject*, and they seek to explore the structure of subjectivity. They see man not merely as put together from without, but as taking a hand in his own making, as a centre of experience and a unity of self-awareness, as a being who feels and acts, knows and strives, decides and errs. Their concern is with man not merely as an object in the causal order but as a member of the teleological order, that is to say, with man in so far as he is a self or a subject inspired by purposes and not merely moved by antecedent causes. The humanities in their totality constitute the field within which man endeavors to make it clear to himself what he is as a subject. They represent the funded insights of mankind with respect to the meaning and quality of life in its distinctively human aspects.

What lies behind the controversy over the status of the humanities is thus in the last analysis a philosophical dispute over the nature of man. To single out the humanities as a significant area of human knowledge is to commit oneself to a particular philosophical understanding of man and of human knowledge. The fate of the humanities is bound up with that of the non-naturalistic interpretation of man, which, in its broadest sense, asserts that subjectivity is a unique mode of existence demanding for its full comprehension an ap-

proach different from the scientific one which is adapted to the investigation of objects. This philosophical presupposition is the price-tag attached to the humanities. Without the explicit willingness to pay the price, support of the humanities must needs be mere lip-service or else ungrounded enthusiasm. That man is not merely a natural object, that values are as much a part of the structure of reality as facts, and that human knowledge is not co-terminous with science — these are the postulates which lend significance to the humanities.

The conception of human knowledge which is of the greatest conscious or unconscious influence in educational circles today is that of *scientism*. It is the view which sees in science, especially in physical science, the highest cognitive achievement of mankind, and it is wont to simply equate knowledge with science. The overawing accomplishments of science do indeed impart a high initial plausibility to the belief in the all-embracing adequacy of scientific cognition, and more than one conscientious practitioner of the humanities feels uneasy as he contrasts the expanding conquests of science with the state of affairs in his own field. But this circumstance that science has established itself in the minds of so many as the crown and completion of human knowledge makes it the more necessary to stress the implications of the view as regards the significance of the humanities. The identification of knowledge with science is the death warrant of the humanities, for it inevitably implies that the humanities are not in the final analysis a genuine form of knowledge. From the point of view of scientism, the humanities represent at best but a pre-scientific stage of conjecture, and while they may contain suggestions which science will eventually confirm, until these have been so confirmed they are not finally trustworthy. In so far as they have any cognitive significance at all, the humanities hold only a temporary sovereignty over domains which will ultimately be consolidated within the ever-growing empire of science.

There are some partisans of scientism who would mitigate the harshness of this verdict by assigning to the humanities another role in human affairs as the conveyors of values. Science, they would say, has a purely neutral concern with facts, and if anywhere our students are to become acquainted with values, it can be only through the study of the humanities. The exclusive preoccupation with scientific studies is apt to result in a valuational blindness, and this is a deficiency which can be corrected by means of a supplementary education in the humanities. Such an attempt to create a place for the humanities commends itself particularly to those who have been deeply impressed by the sad consequences of the German system of technical education. Yet the humanities must decline the invitation to remain in existence in the role of purveyors of values, for the verdict which forced them out of business in the first instance likewise effectively prevents them from conducting their affairs even on this reduced scale in any self-respecting manner. This becomes clear as soon as one asks what meaning the notion of "values" can possibly have on the premises of scientism. That the sciences as such are indifferent to evaluations is perfectly true, but when this fact is coupled with the further claim that science is synonymous with knowledge, then the only consequence which it is possible to draw is that value-judgments are not propositions at all and can in no significant sense be said to be true or false. From the standpoint of scientism value-statements have only an "emotive" and not a "cognitive" significance. They express merely arbitrary preferences and not aspects of reality, and hence there is no conceivable way in which they can be validated, and the preferences of one person established as "truer" than the preferences of any other person. A change in values may be effected through force or propaganda, but it can never be rationally justified, for there is no truth in these matters. Thus for the humanities to accept as their sole assignment the "educating for values" while at the same time conceding the pretensions of scientism would mean not that they had become media for the discovery of values, or disciplines devoted

to the achieving of a deeper insight into a real realm of values; it would simply mean that they had converted themselves into agencies of propaganda for some particular and, of necessity, arbitrary set of values. This is a mode of existence of which the humanities have long since made the acquaintance; it has been their bitter fate under all totalitarianisms. The struggle of the humanities to maintain an autonomous existence and to be recognized as independent sources of truth has been perennial, and whenever they have relaxed their efforts in that direction they have become enslaved to one form of authority or another. When the state, or science, or a religious institution becomes the sole arbiter of the truth, then the humanities may not engage in the pursuit of truth, but only in the presentation of it.

The humanities are, to be sure, concerned with values, but their interest is that of the discoverer and not that of the propagandist. They regard values as somehow forming part of the grain of reality and not merely as conventional labels for arbitrary personal preferences. They deem it their task to disclose significant truths and to explore aspects of reality which the sciences must of necessity ignore. This is a task which has no meaning so long as reality is construed as synonymous with the realm of scientific fact. The existence of the humanities as an autonomous field alongside the sciences is intelligible only to the extent that reality comprehends dimensions not amenable to the scientific approach. The humanities presuppose a metaphysics which gives reality to values and ideals as well as to facts. They postulate a world which contains *subjects* which are in process of self-realization along with *objects* which simply exist. It is only in the light of some such postulate that it is possible to speak significantly of the "humanizing" function of the humanities. For to "humanize" a man can mean only to bring him closer and closer to that which he really (i.e., ideally) is; it is to make his actual, present self approximate more and more closely to his true or ideal self. This is to commit oneself to the view that human nature is in some sense an objectively valid ideal which the generations of men strive to realize. It is to imply that human life, as the realization of selfhood, is an existential process of self-creation, and not merely an objective mode of existence, and that as Browning has said, "Man partly is and wholly hopes to be." Objects simply are what they are, but subjects must strive to become what they are. The existence of an object is a datum, but the existence of a subject represents an achievement. A self cannot simply be put together from without; it must take a hand in its own creation or else it merely exists on the plane of objects. The humanities represent human life achieving self-awareness. They are the media in and through which man discovers what he is as subject and what he has to become.

Herein is to be found the fundamental philosophical argument for the humanities in education. It is not merely that they "humanize" man in the sense of developing his sensibilities; as a commentary on the term "humanity," they interpret for him the very meaning of the human. They function to progressively elucidate and to transmit the *idea of man*, and thus to provide the *terminus ad quem* of the educational process. For education in the broadest sense is not merely the transmission of information; it is the fashioning of a human type, and all systems of education are consciously or unconsciously built around some ideal of human nature. They all have some image of man — whether it be that of the Christian gentleman, the Confucian scholar, or the Samurai — in the shape of which they are endeavoring to mold their charges. Educational systems may be evaluated on the basis of the extent to which they embody a conception of human nature which approaches the real nature of man. Where the conception of human nature is inadequate or corrupted, the educational system will produce human beings who are incomplete or corrupted. The idea which man entertains of his own nature eventually becomes flesh in his actual life. The Nazis have shown very clearly what man can make of man.

Men tend to act in accordance with what they think they are. As a result of various circum-

stances, it may happen to an individual that he loses sight of what he is and of what he has it in him to become, and his life then turns into a routine of mere existence with no self-realization. In such a case, it may be that a devoted friend or a loved one retains the image of the individual's potentialities — for love lives not only by the actual but by the ideal vision of the other's possibilities; and through the friend or the loved one the individual is brought to see and to aspire toward the fulfillment of his higher nature. This is the theme of Ibsen's *Peer Gynt*. As the result of a life ill-spent, Peer had no longer any hold on his real self, and he was a doomed man, but for the fact that the vision of the real Peer had remained in the faith, hope, and love of Solveig. It is through her that Peer is reintroduced to himself, and gets a new lease on life. And it may similarly happen that an entire historic age lacks any profound sense of the potentialities of human life and that individuals on a large scale are insensitive to the real inwardness of human life. Under such circumstances it is the function of the humanities to remind man of his deeper moments and his finer visions. The humanities as a cumulative record of the gradual discovery of the idea of man provide a heritage which any man or any age may temporarily forget or ignore, but to which men and ages must inevitably return, whenever they seek to get a perspective on themselves and to overcome their own blindspots.

The present age is preeminently one in which the idea of man stands in danger of being undermined. There is no need to discuss at length what have been the effects — damaging to the human personality — of the machine age. The conditions of life in an urban industrial civilization conspire to destroy inwardness, to undermine subjectivity and to externalize human existence. The manifold distractions of modern life make it difficult to retain any continuity of purpose, and turn the individual into a passive spectator, and his life into a succession of disconnected experiences. The standardization of work and the extreme division of labor in modern society have all but eliminated personal creativity, and tend to blunt the discriminating powers of the individual mind and to unfit it for all voluntary exertion. Our social system seems almost purposely designed to make for the abolition of the individual.

In addition to the social and economic forces which are operating to transform men from subjects to objects, there is another set of influences which is more subtly having the same effect. The development of the sciences and particularly of the sciences of man has involved a radical reorientation of outlook on human nature. The impact of the scientific ideology upon the traditional conception of man has usually been recounted in terms of the conflict between science and religion, and the successive blows delivered to human prestige by the work of Copernicus, Darwin, Freud, *et al.* But more significant than the shattering of any detail in the traditional picture of human life and destiny is the total change in perspective introduced by science and intrinsic to its nature. The scientific account of man is still incomplete and in the making; the levels of analysis are many and their inter-relationships are by no means clear. Man is variously conceived of as a complex of electrified particles, as a physiological system, as a reflex mechanism, or as moved by deep-seated drives, economic needs or social compulsions. But on whichever level the human being is discussed, one thing is clear, that in science the approach is thoroughly naturalistic and objectivistic. Life is never viewed concretely in its integrity from the standpoint of the one who is living it, but abstractly as a set of processes which may be observed and objectively described. There is no awareness that being a subject involves another mode of existence than being an object. In science, man as a real agent, facing the future and through his decisions participating in his own creation, is eliminated.

This objectifying tendency reaches its culmination with the emergence in the nineteenth century of the sciences of man. It is not, I think, generally realized what is involved in the very notion of a science of human nature. The idea of a science of

man is not merely the concept of an organized body of knowledge about the behavior of human beings; it implies a very special approach to its material and a particular way of understanding it. Scientific psychology is the persistent effort of a subject to construe himself as an object. It is understandable that modern psychology should be most anxious to sell its view of human beings and to get human beings to regard themselves as objects; and in so far as human life is not a concrete existential process of self-realization, but is instead something to be predicted and controlled from without, modern psychology can hope for some measure of success. To the extent that human life relapses into mechanism, habit and inertia, and fails to measure up to its highest potentialities, to that extent do the methods and findings of the science of man become increasingly relevant. In other words, the science of man is concerned with man so far as he is less than human, and its conception of man is based not on his essential nature *qua* human but on what he may accidentally become when he forfeits his humanity. But if subjectivity is a unique mode of existence, and if the realization of selfhood is not a natural process to be accomplished without tears, but is rather, as all the spiritual teachers of mankind have maintained, the most formidable undertaking upon which any human being can embark, then the large-scale propaganda carried on by the sciences of man in behalf of their own view of human nature is a positive menace to real human life. For this view is in the long run disruptive of human life, whatever may be the detailed benefits of its applications, or the minor successes in therapy which it may achieve.[4]

The ideal which modern psychology has set for itself of erecting a purely objective account of that which is by nature a subject, is, I believe, a snare and a delusion, and accounts for much of the irrelevancy and superficiality of its conclusions with respect to the deeper and more important features of human life. The attempt to force upon the study of man a methodology patterned ultimately on the successful techniques of the physical sciences must inevitably fail, man being what he is; nevertheless a vast amount of damage both at the personal and the social level can result from such a basic misapprehension of the nature of man as underlies the scientific approach to human nature. For it is the peculiarity of a subject that he tends to act in accordance with the idea which he entertains of his own nature, and when he is encouraged to view himself as an object, then he soon begins to behave like one. It is not the least of the sins of modern psychology that it has contributed its share to the undermining of subjectivity in the modern world, and it is no accident that the objective knowledge of man which has been gathered by psychology has been found particularly applicable wherever human beings are to be manipulated and controlled.[5]

The humanities today have as a major task the counteracting of the objectifying tendencies of modern life and of the sciences of man. There is a radical conflict in point of view between the sciences and the humanities, and we shall not have a profound or consistent educational theory until this conflict is honestly faced and the scientism which dominates so much educational thinking is explicitly disavowed. It needs to be emphasized that in the strict sense the idea of a *science of man* is contrary to the meaning of human life, for

[4] Dante shows a fine awareness in condemning those, who would foresee the future, to a level in Hell below that of the murderers of the body. The effort to predict and control the future is the attempt to eliminate the power of choice through which alone man becomes a self.

[5] Both advertisers and industrialists have come to appreciate the utility of psychological and sociological research, and a great deal of such research is now devoted to the question of how to turn out happy automatons for running the modern factory. The psychologist has also come to be a respected figure in the modern army. The tie-up between psychology and an efficient, fascistic society was brilliantly depicted by Aldous Huxley in his *Brave New World*, but I do not think that the logical connection between the view of man which underlies such a society and the view of man presupposed in modern psychology is sufficiently widely appreciated. It is one of the defining characteristics of fascism to regard human beings as things to be manipulated rather than as inviolable subjects. To predict and control human behavior was precisely the aim of Germany's late-lamented Minister of Propaganda and Public Enlightenment.

science applies primarily to objects and not to subjects, and human life in its essence is a spiritual process of self-realization and not merely a natural mode of objective existence. The sciences of man do not supersede the humanities. At best they provide additional data for the humanities. At worst, they misinterpret human life by substituting fragments for the whole. In the effort to pass off abstractions for realities they create a need for the humanities as an antidote.

Positively, the role of the humanities is to illumine the idea of man and thereby contribute to the realization of selfhood. In so far as the living of a human life, as opposed to the existence of an object, is an affair of self-realization, it is conditioned by an awareness of its meaning. It is in the humanities that the meaning of human life in its integral concreteness is explored, and it is through the humanities that man's consciousness of himself as a subject is heightened. The humanities are thus an indispensable ingredient in any genuinely human life. They are not merely luxury subjects or cultural appendages to a scientific education. They are more than the "branches of polite learning." They are necessary that man may become actually that which he is essentially — a human being and a free spirit.

Determining and Implementing Objectives for a General Course in the Physical Sciences

BY R. I. RUSH

CAN THE objectives of a general course in the physical sciences be determined in a systematic logical way or must it be a more or less haphazard process? In this article an attempt will be made to show that it can be a systematic logical process and that the objectives thus formulated lend themselves very readily to implementation. The following is a discussion of one such process.

The first step is to set up criteria in the form of questions by which each objective may be tested. The author set up the following criteria:

(1) Is the objective such that its attainment by students would contribute to the general objectives of the institution?
(2) Will the students' attainment of the objective provide some of the resources needed by people to solve the problems of living faced by individuals and by society? This criterion is based on the assumption that one of the functions of general education is to enable individuals to better solve the problems of good living in a complex democratic society.
(3) Is this objective capable of development within the subject matter of the physical sciences?
(4) Is it of such a nature that facilities needed for its accomplishment are available or can be made available?

Every individual as he goes through life must possess certain resources which will enable him to overcome obstacles, solve the problems which confront him, and live a successful, happy life. Any of these resources which a student has not acquired, therefore, constitutes a student need. After having set up the above criteria the next step seemed to be to determine just what are the needs of students. Obviously, they are not the same for different groups of students and they will vary from time to time. However, many needs seem to be pretty general. Some of these may be met by a study of the physical sciences. The following are some of the ways by which these particular needs may be determined.

(1) A study of the literature dealing with student needs, such as "Science in General Education," workshop reports of the Cooperative Study in General Education, etc.
(2) An instructor's study of his own experience in teaching in a particular field of science.
(3) Consultation with those who have taught or are teaching a general course in the physical sciences.
(4) The use of a two dimensional or checkerboard scheme of analyzing and determining the resources needed by people in solving problems encountered in living a good life. This scheme consists of first dividing the problems of living into areas, such as personal health, personal economic, socio-economic, socio-civic, esthetic and leisure time, etc. Then problems are listed under each of these areas. The following checkerboard shows how one such problem may be analyzed —

Problem	Activities to engage in to solve the problem	Resources Needed to Solve Problem: Information
To determine what factors are involved in stopping an auto and how these factors are related. (Personal-economic, socio-civic, socio-economic.)	1. Study the literature on the subject. 2. Evaluate the sources of information. 3. Evaluate experiments recorded in the literature. a. How were various factors controlled? b. Are conclusions justified by the data? c. Could other conclusions be justified by the data? 4. Plan and carry out own experiments. a. Formulate hypotheses. b. Plan experiments to test hypotheses. 5. Interpret data and draw conclusions. 6. Check conclusions by further experimentation. 7. Look for further confirmation or contradiction.	1. Inertia 2. Friction 3. Speed and momentum 4. Types of roads 5. Various conditions of roads 6. Types and condition of tires 7. Types and condition of brakes 8. Weight of car 9. Reaction of time of individuals—(a) male, (b) female, (c) audio signals, (d) visual signals, (e) physical condition of individual

Resources Needed to Solve Problem: Skills	Habits	Attitudes and Beliefs	Interests and Concerns
1. In searching the literature. 2. In evaluating sources of information. 3. In planning and carrying out experiments. 4. In using instruments involved in experiments. 5. Involved in use of scientific method. 6. In making certain mathematical calculations involved. 7. In applying principles of physics. 8. In reading and understanding articles which record and discuss experiments and their results.	1. Using the scientific method. 2. Consulting the literature before carrying out an experiment. 3. Evaluating sources of information. 4. Applying principles. 5. Self criticism. 6. Being intelligently critical of experiments of others.	1. Belief in the value of scientific investigation. 2. Belief in the possibility of reducing auto accidents. 3. Attitude of intelligent criticism of existing regulations for public safety. 4. Belief in the value of checking and verifying results.	1. For welfare of others. 2. For own welfare. 3. For regulations to increase public safety.

In the first column at the left the problem is stated. Indicated in the next column are the activities a person would need to carry out in order to solve the problem. In the remaining columns the resources needed are outlined. It is not intended that any of the columns are complete but enough is given to illustrate the idea. A study of a number of such charts is helpful in arriving at objectives of the course. The charts are also useful in determining the teaching procedures and in selecting the subject matter content.

(5) Still another means of determining student needs is the analysis of scores made by college students on numerous inventories developed by the Cooperative Study in General Educa-

tion and others. Some of these, as the Health Inventories developed by the Cooperative Study in General Education, are designed to determine if there are needs in areas other than information, such as habits, practices, attitudes, critical thinking, etc. These are especially helpful since it requires more than information to solve problems.

The third step in formulating the objectives seemed to be to make a study of the resources students could gain as a result of a study of the physical sciences and then to determine which of these would help to meet some of the student needs. As a result of such a study by the author it seemed that three types of resources could readily be utilized. They might be termed (1) intellectual skills, (2) personality traits, (3) information and understandings.

Following the scheme outlined the general purpose and objectives of the general course in the physical sciences given at Centre College were determined and formulated. They are included here merely as an illustration of what can be done and not as a model set of objectives, and also to clarify the meaning of the three types of resources mentioned above.

The general purpose of the course is to help students to develop and to acquire "resources" which can be gained by a study of the physical sciences, and which may help them to live happier, more meaningful, and more useful lives in a democratic society. This statement of purpose implies that the primary concern of the instructor will be a consideration of what "resources" there are in the physical sciences which can help people live "the good life," and by what means these "resources" may best be developed and acquired by students in order to help them to live the good life and be more active participants in a democratic society.

If this purpose is accomplished, students should evince the possession of at least three important resources: (1) certain intellectual skills, (2) certain personality traits, (3) certain fundamental understandings of the physical sciences. The following outline gives some idea of what is meant by these resources:

(1) As a first important resource students should give evidence of possessing certain intellectual skills. They should —
   a. Think critically. Among other things this involves
      (1) Identifying assumptions
      (2) Suggesting hypotheses and planning ways of testing them
      (3) Reasoning logically
      (4) Interpreting data
      (5) Applying principles
   b. Organize and use these thinking skills in attacking
      (1) Problems of the physical sciences
      (2) Problems of living faced by individuals and by society in a democracy
   c. Receive and communicate ideas with facility, which involves
      (1) Reading with understanding
      (2) Listening with understanding
      (3) Writing and speaking with clarity
      (4) Using with facility the elementary mathematical symbols and operations
   d. Think quantitatively, that is, they should have some conception of time, relative distances, relative magnitudes, etc.

(2) As a second important resource students should give evidence of possessing certain personality traits. They should evince
   a. An attitude of
      (1) Open-mindedness toward conclusions logically arrived at by themselves and by others
      (2) Objectivity in dealing with problems
   b. A belief in
      (1) The orderliness of nature
      (2) The usefulness to man of the scientific method
      (3) The value of scientific investigations
   c. The habit of
      (1) Using the scientific method in attacking problems

(2) Being critical of conclusions of self and of others
(3) Suspending judgment until sufficient evidence is at hand
(4) Being genuinely curious
(5) Thinking objectively
(6) Being intellectually honest
(7) Assuming responsibility for planning courses of action

d. An awareness of and a concern for the unsolved problems of individuals and of society.

(3) As a third important resource students should give evidence of possessing certain fundamental understandings of the physical sciences. If these fundamental understandings are possessed, students should have

a. A scientific picture of the physical world, which would involve a knowledge of
(1) The objects of the physical world which are of the most importance to man
(2) The relationships that exist among these objects
(3) The methods by which these relationships have been ascertained

b. A knowledge of the interrelations of man and the physical world, such as
(1) Some of the intellectual, social, and economic applications of some of the inventions and developments of the physical sciences
(2) Some of the intellectual, social, economic, and political effects of the application of some of the inventions and developments of the physical sciences
(3) Some of the effects, beneficial and otherwise, of individuals and of society on scientific development

IMPLEMENTING THE OBJECTIVES

Having determined and formulated the objectives of the course it then becomes necessary to devise ways and means of assisting students to attain the objectives. This consists of outlining procedures which seem most likely to help students make progress toward the achievement of one or more of the objectives. It is believed that the manner of presentation or treatment of subject matter is as important if, perhaps, not more important than the subject matter itself. Therefore it seems wise to spend considerable time in studying the various teaching techniques or procedures with a view to selecting for use those which are judged most likely to contribute to the attainment by the students of the objectives of the course. A few of these procedures are discussed very briefly in the following paragraphs.

One such procedure is a special type of class discussion. It consists essentially of guiding students to infer principles, to construct a theory from certain information they have, or give evidence for ideas of generalizations they already have. The rules of logic are followed strictly and students and instructors alike will challenge each other when statements are made which are not clearly understood or which do not follow logically from what has preceded. While this technique is somewhat time-consuming it is effective especially in helping students to acquire many of the intellectual skills and to develop most of the personality traits previously mentioned.

The procedure just decribed is a more or less over-all technique. A more specific procedure consists of presenting students with some problems of the physical sciences faced by scientists in the past, and of leading the students by the use of directing questions through the process used by these scientists in solving the problem. This procedure is particularly useful in helping students to acquire a workable understanding of the scientific method and a knowledge of the limitations as well as the extensiveness of the generalizations arrived at by the use of the scientific method. A similar procedure can be used to outline ways of attacking some of the problems of living, thereby helping students to learn to use the scientific method in attacking problems in areas other than the physical sciences.

A procedure which is particularly helpful in assisting students in learning to interpret data is to present them with data and ask for generalizations which may be made from the data. Some will go beyond the data while others will draw conclusions which are less general than the information warrants. This provides a basis for discussion which should bring out rather clearly some fundamental ideas of interpretation of data. It can be varied by presenting data and also a number of possible conclusions from the data. The students will then discuss the validity of the different conclusions, thus arriving at an idea of what constitutes a justifiable conclusion.

Another very useful technique is that of having individual students or small groups of students work on a project. The project should consist of a problem whose solution involves obtaining and interpreting experimental data. The method of attack is to be approved by the instructor before work is begun.

Reading with any degree of understanding seems to be rather difficult for many students. One way of helping them to get a few fundamental ideas about it is to make a reading assignment and then quiz them on a knowledge of the terms used, grasp of the main idea or ideas conveyed in the assignment, appreciation of the organization of the material, etc. If the first assignment is made without any reference to reading with understanding and then at the next meeting questions are asked involving the above ideas it seems to drive the points home rather forcibly.

Other techniques which are effective but which we need not discuss here include oral and written reports, field trips, demonstration experiments, and the use of sound films, opaque projections, slides, etc.

In developing a general course in the physical sciences it is very difficult to determine what subject matter shall be included, since there is such an abundance of material. However, if the objectives are clearly stated and if the techniques for implementing the objectives have been worked out carefully the task becomes less difficult. For example, for the objectives outlined earlier and the techniques briefly described above two criteria could be used. First, will the piece of subject matter contribute to the scientific world picture? Second, will it lend itself to treatment which will help students to acquire and develop the intellectual skills and personality traits indicated in the objectives? In connection with the selection of subject matter specific ways of using the various teaching techniques should be worked out. For example, if the shape of the earth should be selected as a topic to be included the following specific procedure could be developed for presenting it.

The instructor asks a particular student "What is the shape of the earth?" The reply will invariably be "round." The instructor then asks "What do you mean by round?" After more questions the word spherical is finally used, and students are asked to define it. Then the instructor comes back with the question "How do we know the earth is spherical?" Usually students will be able to give the following evidence:

(1) In sailing away from port the hull of a ship disappears from sight first, and then the mast.
(2) By continuously traveling in the same direction one will arrive back at his starting point.
(3) Infra-red photographs taken from high altitudes show the earth to have a decided curvature.
(4) During an eclipse of the moon the edge of the shadow of the earth always appears curved.

By raising a few questions the instructor can get the students to see that this evidence is not too conclusive. (Students will be asked to define "conclusive," of course.) The instructor will then present data showing the length of miles on the earth's surface subtended by an angle of one degree between two radii of the earth. This will be accompanied by an explanation of this phenomenon in the case of a circle and a sphere. If sufficient data are presented the students will then

be able to conclude, by a consideration of all the evidence, that the earth is generally spherical, being somewhat flattened at the poles. By this time the students should have gotten some idea of what is meant by evidence and the conclusiveness of evidence.

Another and a very important aspect of critical thinking can be brought out if the students are asked what assumptions, explicit and implicit, are involved in arriving at the above conclusions from the evidence presented. Very few students realize that assumptions must be made in order to arrive at a conclusion from observations or experimental results, and this type of procedure offers a good chance to emphasize this point.

The gas laws may be used to help students to interpret data and to realize why controlled experiments are desirable where possible. For example, data supposedly showing the relationship between the volume of a given quantity of a gas and its pressure (no mention of the temperature being made) may be presented to the students. They would then be asked what conclusion could be drawn from the data. Some will give Boyle's law as a conclusion from the data. Someone may raise the question about temperature and he would be asked why the temperature entered into the picture. Finally students themselves will bring out the point that the temperature also affects the volume of a given weight of a gas and that if the pressure-volume relationship is being studied the temperature should be kept constant. This can then easily be extended to include all other factors that affect the volume of a gas. Following this, correct data showing the volume occupied by a given weight of a gas at various pressures, other factors being kept constant, can be presented along with a number of possible conclusions. Some of these conclusions will go beyond the data and some will be less general than the data will warrant. By a directed discussion of the different conclusions the students will gain some skill in the interpretation of data and some understanding of generalizations.

More illustrations could be given but enough has been said to indicate to those who have not given the matter careful thought that much of the material of the physical sciences, if appropriately treated, can enable students to acquire and develop resources which will be valuable to them in living a happy, useful life in a democratic society.

United States History and World History

BY JOSEPH R. STRAYER

THE MAIN points of this essay may be summed up in four categorical assertions; the proof, or attempted proof, will follow.

1) The most important values to be derived from the study of history cannot be obtained from a study of United States history alone, or from a combination of United States and contemporary European history.

2) It is therefore urgent that students be introduced to the history of non-American regions and non-contemporary periods.

3) Few high school students and only a minority of college students now secure this training.

4) It is possible to develop courses which will add the elements missing in United States history without taking an excessive amount of time and without trying to teach the history of all civilizations and all periods.

Let me begin my argument with a question. Why is it important to study any kind of history? Much has been written on this subject recently, too much to be summarized in a brief article. We may limit the discussion by considering three results which are generally supposed to be produced by the study of history, and see what kind of history must be taught in order to give these results.

The first is the acquisition of information — knowledge of the facts of history. This is the least important result in the eyes of historians — the most important (usually) to laymen. A recent example of this bias was shown in the New York *Times* investigation of the teaching of American history, which placed excessive emphasis on detailed knowledge of facts. The professional historian knows that facts alone do not contribute much to historical or social understanding, that they are difficult to learn and easy to forget, that general impressions and attitudes linger long after the facts have vanished. But we should not dismiss the learning of facts too easily — there is a minimum which must be learned and retained for any serious thinking about social problems. This minimum forms a nucleus in the mind around which information acquired later in life can crystallize. If this nucleus does not exist, scattered impressions cannot be organized into meaningful patterns. We can all think of basic facts in our own history with which every citizen should be familiar. It is important to know that there was a Civil War and a Reconstruction — these facts still influence political and social relations between North and South. It is important to know that there was a great depression which began in 1930 — the fact of that depression colors not only our own thinking but the thinking of many foreigners about us.

We must learn the essential facts about our own country — no one doubts that. But are all the essential facts included in United States history as it is usually conceived? The Reformation, for example, is a very important fact in *our* history; it not only stimulated colonial settlement but was a major element in our thinking for at least two centuries. Yet it is usually thought of as belonging to European history. The Industrial Revolution offers another set of facts, only a few of which fall within the narrow limits of United States history. Americans are not responsible for all the

great inventions — though some of our textbooks seem hardly aware of this — yet every great invention had its impact on our history. The steam locomotive, developed by Englishmen, had a more profound effect on our society than the steam ship, developed by Americans.

Beyond this debatable land lies the broad area of facts which are clearly not part of our history, but which are essential if our people are to judge intelligently the policy of our government. If it is our task to preserve Western civilization we had better know some of the elementary facts about the development and nature of Western civilization. If our great diplomatic problem is dealing with Russia, we had better know some of the basic facts of Russian history. To take the simplest possible example — how many students know that Russia fought in the first World War much less, what side she fought on? Teachers who try that question on their classes may be surprised, as I was, at the amount of ignorance it reveals.

However, we should not stress facts unduly; I shall merely repeat that a nucleus of facts is necessary and that that nucleus must extend beyond the history of the United States. I turn now to my second point.

Most recent writing on the teaching of history has stressed the value of history as a basis for understanding human behavior, as a way of extending ordinary experience. This is far more important than information, in fact it is probably the main reason for studying history. All human activity is based on history, on the memory of what has happened — either collective memories which have hardened into customs and institutions, or individual memories which determine personal reactions to new problems. Life would be intolerable if we could not rely on experience, if every day brought new problems to which no precedent applied. A man without memory of his past is desperately ill — he is helpless until he can regain his old past or acquire a new one. The same thing is true of societies. Even in what seems an utterly new situation you see statesmen searching desperately for something familiar in the past which they can use — witness the Founding Fathers in 1787 studying Greek and German examples of federation, or the Bolshevists of the 1920's worrying over Thermidor and Bonaparte.

In primitive and uncomplicated societies it is fairly easy to obtain the necessary experience without special study. Much of it is embodied in custom and tradition; the rest comes through personal participation in the activities of the group. More complicated societies can't rely on this unconscious and unplanned training — tradition is a very coarse sieve which catches only the largest nuggets of triumph and disaster, while personal experience is limited to a very few out of all the possible activities of the group. Even worse, this limited personal experience may not include any of the really important activities of the society and is almost certain to exclude some of the fundamentals.

Therefore, in all advanced societies some form of education, some way of widening the individual's range of experience is necessary. And of all subjects, history bears the heaviest responsibility in giving experience. It should deal with all activities and not with certain selected topics, in contrast to economics and politics. It should discuss the experience of ordinary as well as extraordinary people, in contrast to art and literature. It should give more concrete examples than abstractions and generalizations, in contrast to sociology and the sciences. When history does this it becomes the best source of understanding about our society, the best (though by no means a perfect) guide to action.

But does the study of United States history alone give all the experience which is necessary for understanding and intelligent action? Aren't there forms of behavior, and types of activity not illustrated by the American record, which are yet essential for full understanding of the situation in which we find ourselves? Let me fall back on an illustration which I used in an earlier investigation. Learning history is like learning a card game — say bridge. No two historical events — no two hands of cards are exactly alike. But if you play

several thousand hands you develop a certain card sense. You know what is most likely to happen; you can make sensible decisions, even if you guess wrong you can save something. So if you study much history you develop a sort of historical sense which helps you make more intelligent decisions about human affairs. Up to a certain point any history is helpful, just as any distribution of cards is for learning bridge. But would you be a good card player if you played constantly with only one suit as trumps? That is very much what results from studying only United States history — or even a combination of United States and recent European history. Diamonds were always trumps in the nineteenth century game, and men brought up in that tradition find it hard to believe that trumps can change. Witness our policy toward Europe in the '20's, or the British belief that they could control Fascist states through loans and trade agreements. Both countries were rather bewildered when they found that clubs had become trumps and most of us still don't like to think of playing the game that way. Or, to drop the metaphor, where do you find examples of societies where the profit motive was not dominant, where nationalism was not the most important faith, where a consecrated elite made decisions for all? Where do you find examples of rival civilizations, each proud of its own way of life, each determined to maintain its individuality, each vowed not to compromise with or imitate its competitor. Not in United States history — nor in recent European history. You have to go back to the Middle Ages or even earlier to find records of these experiences. And yet, can we make wise decisions in the world today without knowing something about such non-democratic societies and such rival civilizations? That is not merely the opinion of an academician, it is the opinion of a distinguished soldier and statesman. In his speech at Princeton on February 22, General Marshall said: "I doubt seriously whether a man can think with full wisdom and with deep convictions regarding certain of the basic international issues today who has not at least reviewed in his mind the period of the Peloponnesian War and the fall of Athens." Few historians would dare go so far (ancient history is almost a lost cause), but it is an emphatic way of saying that the American experience is not enough.

The third desirable outcome of the study of history is harder to define because it is not an intellectual quality, such as knowledge, understanding and good judgment, but a moral or emotional one. We might call it stability, balance, a sense of being at home in the world. History, even more than the drama, can purge the spirit of fear and self-pity. Its function is not merely to enable men to act intelligently but also to live serenely, to keep their equilibrium and sanity. The older writers were aiming at this when they spoke of history demonstrating the inconstancy of Fortune and the vicissitudes of states. We have rather neglected this value of history, but it is worth thinking about in a period when the foundations of society are shaking. Neither over-optimism nor excessive pessimism are healthy conditions of the soul. History can remind us that man is neither angel nor animal — that neither his triumphs nor his failures are ever complete. It can keep us from arrogant pride and from deadening despair, from feeling that either our accomplishments or our sufferings are unique. It is the unfamiliar that is utterly terrifying; history can show us that other men faced problems as great and dangers as threatening as ours.

But, once, again, will the study of United States history alone give us this ability to face all possibilities serenely? Isn't it true that millions today are unhappy and bewildered because nothing in their personal or educational experience has prepared them to face existing conditions? The two great problems at present are the transformation of our western civilization and the clash between it and other civilizations which were long subordinate but which are now reviving. I say transformation advisedly, for I do not know whether we are facing the decline and fall of the West, or merely a great reconstruction such as our ancestors experienced between 1400 and 1600. But

in either case, for our own peace of mind, we must know something of earlier transformations, none of which occurred within the geographical limits of the United States or the chronological limits of the nineteenth and twentieth centuries. We must know not only that Rome fell, but also that something of Rome survived. We must know not only that there was a transition from medieval to modern but also that the transition, stormy and painful as it was, nevertheless was quicker and less destructive than most profound alterations in civilization. As for relations between co-existing rival civilizations, it might give us some peace of mind if we studied relations between Western Christendom, Byzantium and Islam during the Middle Ages. No one of these three bitter rivals ever fully conquered its opponents, no one of them lost its identity, no one of them ever admitted the superiority of an alien way of life. And yet they were at peace more often than they were at war, the greatest trade-route west of China connected all three, and modern science, born of Greek parents, was long fostered by Mohammedan scholars before it found its final home in the West.

If the full value of history comes only when knowledge of other countries and other times is added to that of our own country and period, are we planning our high school and college curricula so that this full value may be realized by our students? The answer is so obvious that it is hardly worth discussing. The schools are under terrific pressure — from educators who want more time for other subjects, from politicians and patriots who want to use for United States history all the time allotted to social studies. The course in European or world history is optional, where it exists at all, and is taken by only a handful of students. My own state of New Jersey has recently passed a law requiring two years of United States history in high school. This act has almost killed European history in the high schools; only students with fanatical devotion to history can squeeze the European course into crowded schedules. Few men entering college have had anything but United States history, and this condition is getting worse rather than better. As for the colleges, the situation is not much more consoling. The courses listed show a better balance between United States and non-United States history, but the course enrollments tell a different story. Outside the survey courses, the largest enrollments are always in United States and modern European history and the latter has almost the same limitations as the former. As for the surveys — useful as they are, they still have the serious defect of going very rapidly over early periods and touching very lightly on non-European civilizations — precisely the areas where emphasis is most needed. In short, it is possible for men, otherwise well educated, to take four or six one-term history courses in high school and college, and still never study anything before 1776 or beyond the narrow limits of the United States and Western Europe.

If this is, as I think, a disturbing situation, what can we do about it? We are limited in many ways; we shall never have enough time or enough student interest to teach everything about every period and every region. We have to compete with subjects which are much more exciting for many young people than history. As Professor Krey pointed out long ago, we have to teach most of our history at the worst possible age, after students have lost the child's interest in anything new and strange and before they have acquired the mature man's interest in past experience. History is seldom the most popular subject in school, though it sometimes reaches this level in college. Also, while I think we teach more United States history than is absolutely necessary, we cannot and we should not cut it much. It is not enough by itself, but it is an absolutely essential basis for understanding other regions and other ages. So our problem is to devise courses which will attract hesitant students and which will give, in a relatively brief length of time the material which does not appear in United States history. Obviously this can be done only by some form of sampling — sampling of types of experience which are not covered in United States history, of regions and periods which have other motivations, other dominant activities

than ours. To this must be added illustrations of the great problems of the rise and fall of civilization, of the contact and conflict of cultures. We must get all this in and still not be superficial; we must leave out much and still strive for an accurate portrayal of human behavior. What sort of courses come near meeting these impossible requirements? There are three possibilities worth considering:

1) A modified and abbreviated form of the old survey of Western civilization, deliberately shortened to allow more emphasis on key ideas. It would start in the fifteenth century (with some medieval background material) and discuss the nature of medieval civilization, the reasons for its collapse, the transformation of medieval into modern civilization, the development of modern civilization, its past achievements and its present weaknesses.

2) A revised version of the old expansion of Europe course, using much of the same material, but with changed emphasis. We can no longer think in terms of an inevitable and all-conquering expansion of Western European civilization; instead we must think of interactions among civilizations. We must ask questions such as these: what were the qualities of European civilization which enabled it to expand; how did it affect other civilizations; how are they reacting to European influence; what is happening to European civilization now that its successful colonies are stronger than the old center, now that unsuccessful colonies are reasserting their native cultures?

3) Third, a less orthodox type of course, which abandons chronological continuity and studies intensively certain periods which seem especially important. One such course, proposed by a group of historians at an Eastern University, begins in the fourth century and discusses the fall of Rome, the conversion to Christianity and the rise of suppressed Eastern cultures. It then jumps to the twelfth century, when the Commonwealth of Christendom was at its height and relations between Christian and Moslem societies were most active. The third period deals with the sixteenth century and the beginnings of modern society, the national state system and the expansion of Europe. It ends with the twentieth century, with emphasis on contrasts to, and parallels with, earlier ages of stress. I must admit that this type of course seems to me to sacrifice one of the great values of history, that of showing, through continuous chronological development, how change is never absent yet never complete, how old institutions and ideas live through many ages, modifying their new environment and being modified by it. These doubts may be a little old-fashioned; I cannot deny that experiments with this type of course have given relatively good results at the college level.

Do we have any hope of inserting courses like these into our present curricula, and, more important, of persuading large numbers of students to take them? I am not competent to answer this question at the high school level. Representatives of the schools know far better what is and what is not possible for them, and a college professor can only say that he would be very glad if more entering freshmen had had this kind of preparation. At the college level I can speak with more assurance. There is no excuse for teaching United States history to freshmen. The schools are doing a better job all the time; most freshmen have just had a good course in United States history and should not be asked to repeat it immediately. Most freshmen will take at least one course in history; this is especially true in the East where there is a growing tendency to require all students to take some work in history during their first year. The freshman history course should be stimulating and enlightening. These results will not be achieved by repeating a survey of United States history, or by giving the history of contemporary Europe which is the same play with different costumes. What is needed is a course which will show the infinite possibilities of human behavior, and the great drama of the rise and fall, the contacts and conflicts of civilizations. Only with this kind of training will we give our students the preparation which they need to be intelligent citizens and well-balanced individuals in the world of today.

The Classical Scholar as Humanist

BY PAUL L. MacKENDRICK

EXPOSITORY writers in general, and the classical scholar in particular, with the example of Socrates before him, should begin by definition. I had better begin by defining what I do *not* mean by humanism. I mean by it neither pragmatic humanism, which denies the validity of absolutes, nor the so-called "New Humanism" of Irving Babbitt and his school, which seems to exist chiefly to deride Rousseau. I mean by it what Terence meant when he made Chremes say, "Homo sum: humani nil a me alienum puto"; and what Erasmus meant when he denounced the slavish imitation of Cicero and suggested that "to speak with propriety we must adapt ourselves to the age in which we live.".

In Terence's and Erasmus' sense all classicists should be humanists by the very nature of their education: we are forced to it willy-nilly by the subject-matter of the books we read and teach. No one, for example, can appreciate Plautus and Terence without some understanding of stage-craft; to comprehend Lucretius we must have a bowing acquaintance with physics; Caesar mocks us unless we are strategists and tacticians; Cicero makes, or should make, rhetoricians of us all; when we go to school to Vergil in his *Georgics* we must be agriculturalists; Tacitus requires of us a philosophy of history. Thus both what we learn and what we teach demands that broad interest in every field of human knowledge implied in my quotation from Terence.

Not only the subject matter of classical authors, but the long and, on the whole, noble history of classical scholarship give us a broad and humane tradition to which we may point with pride and affection, never forgetting that ours is the longest unbroken apostolic succession in the whole sweep of Western culture and that it is to the revival of *our* subject that scholars have given the proud name of Renaissance. We shall do well if we can preserve the sense of the perennial freshness of what we teach that Poggio Bracciolini knew when he discovered the manuscript of Lucretius, or that Desiderius Erasmus felt while, having discovered that "without Greek the amplest knowledge of Latin is imperfect," he worked quietly away at his paradigms in Bologna. We should be fortunate if we could always find in our modern textbooks the vitality, the sense of the intimate connection of the language with life, that overflows from the pages of his *Colloquies*. And we should perhaps recall to our colleagues, if possible without undue brutality, that he, Colet, and More, in their Latin teaching anticipated the "direct method" by over four hundred years.

It is with sad thoughts of this noble tradition that I have noted, in recent issues of a classical periodical, the proposal to "brighten our classroom routine" by having our students decline "Coca Cola," "hocus pocus," and "yum yum." Now I am sure that this was not what Erasmus had in mind when he advised us to adapt ourselves to the age in which we live. If our century is to go down in history as the producer of anything less meretricious than the techniques of the singing commercial, we must adapt ourselves to the best in it, not the worst. In other words, we must bring our teaching up to Erasmus' level.

II

There is in my last sentence an indication of the

price we classicists have to pay for the possession of so long and so glorious a tradition. We must remember that the pride implied there is a mortal sin, and that traditionalism without the spark of life is as dangerous — and as unnecessary — in education as modernism without goals or sense of ultimate values. The history of our subject is studded with figures who will serve us as the villains of our cautionary tales. There is the Pope who categorically refused to read the Vulgate, on the ground that it would spoil his Latin prose style. There is Richard Porson, who, so students in classical seminars are perhaps too often told, in his last illness started up in his bed and remarked to the mourners with his death-rattle, "Always verify your references." I remember, too, a professor of mine, who in his course in one of the greatest of great books, would dismiss the content with apparent repugnance and at the appropriate stage remark with obvious relish, "Gentlemen, we now embark upon Book III, a veritable morass of syntactical peculiarities."

All these gentlemen were secure, as we are not, in the realization that theirs was a protected industry. They did not live in the day when the classical professors of Cambridge University voted against compulsory Greek, "disliking the word 'compulsory'," as one of their number put it, "but not noticing that 'Greek' came after it." In recent years it is no longer even true, in the words of an acrimonious mid-Western economist, that "the ability to use and to understand some of the dead languages of southern Europe is not only gratifying to the person who finds occasion to parade his accomplishments in this respect, but the evidence of such knowledge serves at the same time to recommend any savant to his audience, both lay and learned." As an example of conspicuous consumption and conspicuous waste, this same formidable authority equates the study of the classics, as a leisure-class scholarly occupation, with the high place occupied in pre-War German universities "by a skilled and graded inebriety and a perfunctory duelling."

The opportunity for a transition to German scholarship is a useful one, for the dead hand of German *Wissenschaft* is all too evident in some branches of American classical teaching. I hold no brief against scientific method, but I do hold that it must be followed as a means rather than as a *Ding-an-sich*, and I deplore, with Housman (whom I in no other respect resemble), "the idle and pretentious game which the Germans call *Ueberlieferungsgeschichte*, because that is a longer and a more noble name than 'fudge'." It was, from the point of view of the secondary school and college undergraduate Latin student, a sorry day for the classics in America when Basil Lanneau Gildersleeve descended from his train at Göttingen and entered the classical seminar there, for he thereby set the training of our classical teachers upon a career of Ph.D.-fetish worship which has never sullied the saner scholarship of France or England. German *Wissenschaft* is, in a way, on a level with declining "Coca Cola": each is the fashion of its age: the worship of the scientific method in the nineteenth century and the bow to cheap commercialism in the twentieth, and both are equally inappropriate to the ends they are meant to serve.

Those of us who have had the opportunity to observe the college-trained American abroad have had rueful occasion to note how poorly he, with his specialized training, compares with the more humanistically educated product of foreign universities. I remember being particularly unhappy when a Portuguese high-school teacher on a remote island in the Azores remarked to me of a colleague of mine who was an expert in radar, "I spoke to him of Napoleon. He said, 'Who *was* Napoleon?' " These intellectual blinders are the inevitable result of abandoning the humane tradition of the Renaissance for the overspecialization of German or American *Wissenschaft*. And the obvious place to begin to lay the broad foundation seems to me to be the secondary school.

Otherwise we run the risk which the possession of a long tradition always entails: we are so busy looking back over our shoulder that we do not see the broad vistas ahead. While we pursue the will-

of-the-wisp of scientific method or adequate motivation, the steady light of true humane learning escapes our notice. To change the figure yet again, we must learn to look forward as well as back, and, like Janus — though here the metaphor assumes monstrous proportions, and had better be abandoned — to do it without squinting.

Let me repeat that there is nothing wrong with the scientific method provided we always remember that it *is* method: a means and not an end. In this matter of method the classical scholar as humanist should have enough historical perspective to avoid the unnecessary quarrel between the pragmatists and the absolutists. Classical scholarship at its best is deeply indebted to the pragmatist for his insistence — which is also Plato's — on scientific procedure, for his avoidance of premature conclusions, drawn before all the evidence is in, for his refusal to insist like a doctrinaire on his view of the truth before all the facts are analyzed. All this is excellent, but not in itself: it is excellent as a road by which we reach some vantage-point where the truth is clear to us, and, as we see it, so must we teach. We have as much to learn from Dewey as from Plato, but no more. In our investigations we need William James' "tough-mindedness," Darwin's intellectual curiosity, Dewey's readiness to accept change — in a word, we need the pragmatic attitude; but, to give weight to our conclusions, we need Plato's sense of the continuity and importance of tradition, and the feeling we share with Quintilian and Erasmus of our indebtedness, but not our enslavement, to our classical past.

If we do not make this combination, we fall into the well-worn fallacy of fomenting a completely vain and unnecessary quarrel of ancients and moderns. The most pernicious contemporary form of this fallacy is the completely false distinction currently drawn between so-called "liberal" and "vocational" education, with its equally fallacious corollary that since the classics are obviously "liberal" they are useless to the student in the doing of his life's work. The false antithesis of "liberal" and "vocational" sets up a class distinction which has no place in democratic education, and casts the classical teacher in the unenviable and unpopular rôle of the intellectual snob. We should recognize on the one hand that in a complex machine age a purely literary education is as anachronistic as the dodo or the Model T, and on the other that in an age when a man holds in his hands the machinery for his own destruction it is fatal to teach him the mechanics of putting his bomb together without the ethical sense that will tell him when not to use it. We and our scientific and vocational friends can be useful to one another: we should busy ourselves, before it is too late, in weaving a coat without seam instead of casting loaded dice over a divided garment.

III

And fortunately, in this world which seems to have so changed since Hiroshima, we have the opportunity to set about our weaving. Scientists like Bridgman and Shapley, Mather and Ridenour are emphasizing the need of some ethical restraint to our atomic exuberance, and, as Jacques Barzun points out, it is precisely in the field of ethical conduct, of human relations, that the classics have the most to offer. It is indeed precisely because the *Republic*, for example, sets out, and discusses, and tries to solve dilemmas that you or I or a teen-ager or a college athlete can be made to understand that it has survived to our day. If it was worth the attention of an Erasmus surely it cannot truly be beneath the dignity of a high-school junior, especially one living in an age when it is no longer unfashionable, as it was twenty years ago, to have a standard of values.

It is now a truism which even high-school children accept that we live in one world, and it is the cardinal virtue of the Greek and Latin classics, with their long tradition and their provocative treatment of the age-old problem of the proper relation of the individual to his environment (which was precisely the point at issue between Thrasymachus and Socrates, or between Cicero and Catiline, or between Caesar and Vercingetorix) that they give us that sense of unity in

time as well as in space. Perhaps even an elementary study of Latin, properly guided, can give a sense of the continuity of Western culture which can cut at the roots of shallow nationalism and pave the way for that universal brotherhood of man of which Marcus Aurelius dreamed.

Within this new intellectual climate of our time there is a special habitat where the classics, Greek and Latin, can and do flourish. Following the lead of Columbia, St. John's, and Chicago, more and more universities are setting up courses in "Great Books." At the risk of appearing invidious through ignorance, let me single out three cases out of many where classical scholars are contributing to these programs. At Harvard, John H. Finley, Jr., one of the co-authors of the famous *Report*, is now putting the recommendations of that document into practice with a course in the epic in translation. At Princeton, Charles Murphy of the Classics department has been conducting a course in "Man and his Freedom," where the texts deal with Nature, Society, and God, and the attitudes toward them assumed by the Naturalist, the Humanist, and the Theist. At Wisconsin a new curriculum of integrated liberal studies is now being formulated to begin in 1948: it is expected that the first semester will be devoted to a carefully selected number of Greek books and works of art, developed with emphasis on their historical evolution, and their contrast and even conflict with corresponding Latin works in literature and architecture. In all these programs everywhere the classical scholar is indispensable, and if he is a true humanist he will seize his opportunity with enthusiasm.

But for every thesis, as Hegel might say, there is an equal and opposite antithesis, and therefore the new movement has not been without its critics, on both sides of the teacher's desk.

There is, first, the professor who has been teaching this sort of course all along — as we should all try to do if we are worth our hire — who within his own field has steered the difficult course between pedantic overspecialization and shallow generality. He naturally tends to resent the implication that he and his courses are superseded by the new program, but in the end he is usually found teaching the humanities courses in it.

There is, second, the liberal or left-wing professor, like Sidney Hook, who equates Aristotle with absolutism, and tends to reject the new program as a last-ditch defense of the *status quo* in our political life. Often a disciple of Dewey, he may discover on inspection that Plato is not so absolute, nor Dewey so pragmatic, as he had at first supposed. In that case he may be persuaded to teach in the social science section of the new curriculum.

There is, finally, the student. He usually finds himself, especially if he is a G.I., under heavy pressure to prepare as rapidly as possible for money-making. Even if his secondary school experience has not prejudiced him against "culture courses," he finds the requirements for a degree in his field so time-consuming that he has little time for electives.

Such a student may nevertheless be persuaded by a faculty adviser to elect a course in the Humanities. If so, he quite naturally expects "to get something out of it." On the question what that "something" is to be, I find the student not very clear. He seems vaguely to seek a blend of prestige, snob appeal, snap courses, intelligent use of leisure, and even, sometimes, a philosophy of life. He is hardly to be blamed for his confusion. His is a part of a world-wide fuzziness about what is truly valuable to man and about what man should aim at. He finds himself a "Jacksonian" average in an academic society originally constructed for a "Jeffersonian" elite. He feels it incumbent upon him to keep up with the Joneses, and he wonders whether a part of this competition consists in drinking deep of a Pierian spring long reserved for the potations of the leisure class.

The teacher of classics may do something to dispel this confusion, to suggest gently to the bewildered, indifferent, or even hostile student that if he elects any course because it is the done thing or because it is said to be easy — which motives have a perhaps not surprising tendency to coalesce

— he may possibly be involving himself in the greatest treason, which T. S. Eliot's Becket tells us is "to do the right thing for the wrong reason."

Now professors of the Humanities must, if they are to avoid the charge — which is as old as Isocrates — of uselessness on the one hand or transcendental claims on the other, help the student to see that the great books have still the vitality, the relevance, and the timeliness without which no book deserves the name of classic. To make this demonstration without shallow popularizing, specious modern analogies, or false definitions of what constitutes true long-range utility is a real challenge — the sort of challenge that makes our profession interesting. It can be met and it must be met. I do not believe, to judge from my own experience, that the great books "teach themselves," but I do believe that they should be allowed to speak for themselves. Ours is a political age; as Stendhal says, "Politics in a work of literature are like a pistol-shot in the middle of a concert, something loud and vulgar and yet a thing to which it is not possible to refuse one's attention." The *Republic*, to take a political example, poses in clear terms the vexed question of our — or any — age: the proper relation between ethics and economics, and resolves it in a way with which it might be healthy for our students passionately to agree. Students are perpetually discovering how "new" Thucydides is; place before them the Funeral Oration, and, beside it, the Melian Dialogue, and they cannot fail to see the problem of imperialism in a democracy. Tacitus' relentless probing of motives can hardly fail to lead to political soul searching. And so on. The classics are timeless, but it is our job to "adapt them to the age in which we live." They were vital to the Renaissance only because Erasmus and Petrarch so adapted them, and they can be vital to our age only if we accept the burden of reinterpretation, without falsifying, in terms which the twentieth century can understand. It is after all a high tribute to the strength and vitality of a classical book that every age can say of it:

"Hic liber est in quo quaerit sua dogmata quisque:
Invenit et pariter dogmata quisque sua."

In any case, the result of these "core curricula" with their "common frames of reference" is that a larger number of students than ever before is being invited to ask the questions that Thucydides, Plato, and Tacitus asked. And in this process students of the classics in the original have a tremendous advantage.

Furthermore, as the universities more and more widely adopt the new curricula, the secondary schools will more and more adjust their programs to prepare the student for them. And if we are right in our insistence that there is no split between the "liberal" and the "vocational" in education, it will be unfair to deprive those who are not going on to college of their chance to ponder the best that has been thought and said in the world. It is precisely here, by the way, that secondary school teachers of classics will have their great opportunity. They will be called upon to discuss some of these great books in translation, and they can orient their teaching of Latin itself toward the university General Education program.

As we face this new challenge, we shall do well to consider what are our educational aims. Have they changed since Quintilian? Surely, as humanists, we should be in general agreement that we should do our best to help our students to be logical, to develop an effective style, to relate the problems raised by the great books accurately and profoundly to the needs of our time, and to remember above all that it is not enough to be "dicendi peritus": the "vir bonus" must develop and critically apply a calculus of values.

IV

What specific method can classical teachers use to achieve these aims? As teachers of language, we know only too well that we have two hard jobs to do at once: first, to demonstrate to the student that Greek and Latin are more than a complex series of symbols for representing equivalent Eng-

lish; that the great books in both languages represent the play of a living mind upon eternally vital problems; and, second, to show that a close and accurate knowledge of the morphology and syntax of Greek and Latin is an extremely efficient key to the structure of all language. For we live in the hope that not all our teaching will be done in translation, and that General Education courses may arouse in some students the desire to know classical culture at first hand.

To achieve these ends, I think we have at least three possible courses before us: we may lay the authors we teach upon the Procrustean bed of syntax; we may deliver, or require the student to read, a series of more or less graceful "cultural essays" upon our authors; or we may make an Aristotelean compromise between the two. No disciple of Horatian *aurea mediocritas* will long hesitate among these choices.

As a product of rigorous syntactical training here and abroad, I should be the last to undervalue a nice appreciation of the difference in the use of the indicative and the subjunctive with *quod*; indeed I spent four fruitful years trying to instill a sense of these and similar distinctions into secondary schoolboys. Furthermore, as a university teacher, I am grateful for the unsung labors of secondary school teachers the sweat of whose brow has enabled my students to appreciate the lapidary precision of the language used by the authors upon whom my "cultural essays" are based. And I know my colleagues who teach English composition feel similarly indebted to the noble company of Latin teachers who have dinned into *their* students the rudiments of English syntax. But I am sure that teachers and pupils would agree that "the Penelopean practice of undoing each morning what was done the night before" would be less discouraging in the matter of syntax if frequent distinction were made between ends and means. Granted that no one, Cicero or Johnny Jones, can be logical if he does not understand the relation of subject and predicate; that no one can develop a style who does not distinguish between the co-ordinate and the subordinate; and that it is difficult to relate great books to our time if one does not see how, in logic as in conditional sentences, the validity of any conclusion depends on the soundness of the premises. But if the student has followed us so far, he is ready to construct his calculus of values, and he will see that syntactical labels are related to final comprehension as means to ends.

Contrariwise, too many of our survey courses are of the familiar type in which if a student falls asleep for five minutes he loses a hundred years; such courses, with their sweeping generalizations about "trends," offer no palatable substitute for close familiarity with a few important texts. A textbook of elementary French, for example, now widely used, is properly scorned by students because of the carefully labelled "cultural essays" which regularly disfigure its pages. Again, it is not the aim but the method which I criticize; the labelling of the moral, unless it be done with the skill and self-critical humor of a La Fontaine, is an inartistic device which students naturally and rightly resent. Leaving a student to draw his own conclusions is a far more intelligent and productive teaching device than doing his thinking for him. Furthermore, adapting ourselves to the age in which we live need not mean overambitious efforts to adapt literature to social studies; perhaps our colleagues in those fields might profitably be invited to do some adapting from their end. Overstress on figures of speech and syntactical labels, and the uncritical use of critical vocabulary ("Euripides is a 'romantic' "; "the *Cyropaedeia* is the first novel") are all part of this Charybdis.

How can we best steer the middle course? First, in high-school and in college, we can supplement our teaching with other than routine textbooks. Perhaps teachers in other fields than classics, who so often regret that they have not done more with Greek and Latin, may be interested in Latin and Greek self-taught out of such intelligent texts as Hettich and Maitland's *Latin Fundamentals*, which uses mature Latin from the fourth lesson onwards; and there is room in Latin for a rapid survey like Chase and Phillips' *Introduction to Greek*, where

the student cuts his teeth on Plato and may be well on in his comprehension of the tongue before he knows a parasang from a paradox. In second-year Latin, Wormald and Lyne's *Rogues' Gallery* (Cambridge University Press), presents the student with a delightful collection of rascals, all of whom come to a salutary bad end. I have had students in Cicero positively enthralled by Grose-Hodge's *Murder at Larinum*, which presents the *Pro Cluentio* as a detective story, with the villain Oppianicus' wives marked with asterisks and his almost equally numerous victims with daggers. The Clarendon Press series of Latin authors "partly in the original and partly in translation" presents a refreshingly new approach to the standard Caesar and Cicero. Wedeck's *Third-Year Latin* (Heath) contains a selection of eighteen authors, ranging from Lucretius to St. Augustine. I hold no brief against Caesar, Cicero and Vergil, but I see nothing to be gained pedagogically by teaching them, in Juvenal's words, (which may be applied equally to teacher and student):

> "Till, like hashed cabbage, served for each repast,
> The repetition kills the wretch at last."

And I see great gains, both for teacher and for student, in the realization that Latin literature extends before Cicero back to Ennius, and after Vergil down to St. Augustine, or (if we want to be really humanists) to John Milton. This approach offers obvious opportunities for something more than a superficial survey of Latin literature. The 1941 Latin College Entrance Board Examination included passages from twenty-seven different authors, and went far to dispel the student's impression that in Latin there is no God but Caesar, and Labienus is his prophet.

A selection of passages eight to ten lines long, from the standard Latin authors or even from Frontinus on strategems, Velleius Paterculus on Roman history, or the fascinating *Attic Nights* of Aulus Gellius, may be mimeographed and used for sight translation. If they are carefully selected, they will illustrate both syntactical problems and the sweep in time and subject of pretty well all of Latin literature, even inscriptions, and that at a minimum expenditure of precious class time. They may be translated one day and discussed with their background the next; trial and error will produce a coherent, even a humanistic series.

These techniques can be applied as well to college as to high-school courses. In addition, college courses in the classics in the original might well be given by theme instead of by author: Greek political theory, for example, might be illustrated by selections from Herodotus, Thucydides, the "Old Oligarch," the *Republic*, and the undeservedly neglected orators; the theme of rebellion against tyranny can be well set forth by the successive reading of the *Prometheus*, the *Antigone*, and the *Lysistrata*; and in Latin the nostalgia for the republic, with its varied motives, might be demonstrated by selections from Livy, Horace, Tacitus, and Lucan.

These books and this method are not offered as a panacea or a miraculous elixir, they are not new, and many teachers have used similar or equally effective means for years. But what seems to me important is that we should agree about our common ends, and that we should see that these ends are identical whether we teach courses in the original or in translation.

We have surveyed our heritage, assessed the dangers inherent in it, recognized the opportunity we are offered, discussed aims, and proposed a method. We all know what the classical languages can contribute toward the attainment of the humanistic goal of education for all in logical, articulate, relevant, discriminating thinking about the common problems that beset every teacher and every student in this fateful age; if we properly appreciate our heritage from Terence and Erasmus, we shall prove in our teaching that "nothing human is alien to us," and attain breadth of view without superficiality; and we shall "adapt ourselves to the age in which we live" without making our classrooms re-echo with the insane repetition of "Coca Cola," "hocus pocus," and "yum yum."

The Relationship Between General and Vocational Education

BY ARTHUR B. MAYS

DISCUSSIONS of the relationship of general to vocational education did not greatly disturb the thinking of American educators before the effects of the Industrial Revolution became a factor in American life. Nor did educators feel any great concern over it before the concept of democracy in education became an important factor in educational thought. These two forces placed the traditional concepts of education on the defensive and produced a conflict of ideas that is still much in evidence among educational leaders. Before the nineteenth century began, the traditional European practice of providing schools for the higher education of those destined for the "priestly callings," or "learned professions," and relegating the training of those who entered all other vocations to the chance processes of "learning by doing," was generally accepted by educators and laymen alike. The rapidly expanding economic life of the nation after the first quarter of the nineteenth century, however, created an urgent demand for the training of those entering the new machine industries and the growing commercial enterprises. Here and there, voices were raised asking whether in a democracy those who were to engage in the "less exalted" occupations had as much right to organized training for their work in life as those who were to enter the professions. At first, such questions appeared to most educators as sacrilegious and as an effort to profane "the sacred halls of learning." But, the economic and social needs prompting the question could not easily be put aside, and the educational leaders were forced to consider the matter and take some definite stand on it.

During the period when the question first became urgent in the United States, a rather fixed pattern of schooling existed, namely, "common" public schools for the masses in which were offered those school subjects needed by all as the minimum knowledge one must have to attend to his ordinary affairs effectively, and those other subjects which served to "train the mind"; and private schools designed to provide preparation for college of those destined for the professions. Nothing was allowed in the program of public schools which was not needed as the common education of all; no sort of "special" education could be tolerated in the "common" schools. Furthermore, it was said to be "undemocratic" to use public money for any kind of special education. If one desired special training for some vocation, he should pay for it himself. This reasoning, however, did not always apply to preparation for the learned professions designed to train the select "five percent" who were to be the leaders. However, there were a few educators throughout the early years of the century who were not fully satisfied with the character of the common schools even as agencies of "mind training." They thought that possibly the schools were too "bookish," as some expressed it, and too remote in their methods and content from the life for which they, presumably, were preparing pupils. As the pressures upon the schools produced by the needs of the rapidly changing life of the nation grew stronger, for-

ward-looking educators increasingly considered ways of bringing about reforms which would make the general education of the masses more effective, and of providing some means of preparing boys and girls for their vocations. It was the result of this effort of a few reformers which started the controversy over the relationship of general and "cultural" education to vocational education.

The era during which the question of the relationship between the two necessary phases of everyone's education arose was one of reform and rapid change. Men's minds were unsettled concerning many vital questions besides those of education, but, as always, educational thought was affected by all the major forces at work in society. There were two forces at work during the first half of the nineteenth century which exerted very great influence upon educational thought. One was the wave of reform, centering primarily in New England, and taking the form of an effort of the "upper classes" to "uplift the lower or laboring classes." It was, on the whole, a sentimental, unrealistic movement centering chiefly on attempting to take "culture" to the "laboring classes." The thinking of the reformers was utterly undemocratic in its implications, though undoubtedly not consciously so. Their idea that if only the workers could become "cultured" it would greatly improve their work, lies at the base of much of their thinking. It, however, proved to be a notion which favorably influenced the attitude of many leading educators toward vocational education throughout the latter half of the nineteenth century. The other force influencing educational thought was the remarkable economic growth of the nation during the years lying between about 1825 and the close of the century. There have been few eras of American history which have exhibited such rapid expansion of industry, commerce, and national wealth. Both these influences forced attention to the need for the education and training of those engaged in agriculture, industry, and business. Many educators recognized the need and strongly advocated some form of vocational education, but there was no thought at that time of any real effort to meet the need through the established schools. Some educators visualized a sort of special vocational school, as one expressed it, "side-by-side" with the school of general education; but for the most part no serious effort was made to meet the growing need for the vocational education of those entering "the less-exalted callings." During the early part of that era, however, two other movements which attracted much attention contributed greatly to the ultimate development of vocational education of secondary grade. These movements were the Manual Labor Movement, which extended approximately from 1820 to 1840, and the movement to establish agricultural and mechanical colleges. The first of these was not, strictly speaking, an educational movement, though it came to have educational implications. It was essentially a scheme to provide a means of supporting needy classical students in college and to aid in the support of the colleges. The plan was to require students to attend classes one-half the day and work in the fields or shops owned by the college the other half. The idea was imported from Europe and was accepted with much enthusiasm, particularly in the central-western sections of the country. It failed to achieve its economic purposes, and is significant principally because many of its advocates argued eloquently for the educative value of the work experience, and a few saw in it a means of vocational education. Many of the arguments presented were identical with those later put forth by the advocates of Manual Training, and it is evident that they paved the way in the thinking of educators for the Manual-Training Movement which had its beginning in this country in the late 1870's.

The arguments of the advocates of agricultural and mechanical colleges came much closer to the basic concepts necessary for an acceptance of vocational education as an aspect of public education. One of the clearest expressions of the thinking of the advocates of these colleges is that of Jonathan Baldwin Turner, Professor of Latin and Greek in Illinois College, who probably was more

responsible than any other for the establishment of state agricultural and mechanical colleges, or "Land-Grant" colleges, as they came to be spoken of later. He said in 1851: "All civilized society is, necessarily, divided into two distinct cooperative, not antagonistic, classes: — a small class, whose business it is to teach the true principles of religion, law, medicine, science, art, and literature; and a much larger class who are engaged in some form of labor in agriculture, commerce, and the arts. For the sake of convenience, we will designate the former the Professional, and the latter the Industrial class. . . . Probably in no case would society ever need more than five men out of one hundred in the Professional class, leaving ninety-five in every hundred in the Industrial. . . ." He pointed out that the industrial class "want and ought to have, the same facilities for understanding the true philosophy — the science and the art of their several pursuits, (their life-business) and of efficiently applying existing knowledge thereto and widening the domain in their pursuits." He further objected to the over-emphasis on books in existing schools and insisted that: "The most natural and effectual mental discipline possible for any man arises from setting him to earnest and constant thought about the things he daily does, sees and handles, and all their connected relations and interests. The final object to be attained, with the industrial class, is to make them *thinking laborers*; while of the professional class we should desire to make *laborious thinkers*." Perhaps one of his most significant remarks for purposes of this discussion was that the needs of the working class "cannot be supplied by any of the existing institutions for the professional classes, nor by any incidental appendage attached to them as a mere secondary department." [1] It is clear that Turner realized fully the inadequacy of the schools of his day to meet the needs of the "ninety-five percent," and that they were essentially training-schools for only the "five percent." Furthermore, he was sure that vocational education for the "industrial class" would have to be provided in schools specially designed for that purpose and entirely distinct from the classical schools designed for training the "professional class." His thinking was far in advance of that of most of his contemporaries and led toward a more democratic education, but fundamentally his thinking was not democratic in the modern sense. His clear-cut distinction between the two classes into which "all civilized society is, necessarily, divided" suggests the traditional aristocratic concept of education and the supposed inherent impossibility of any close relationship between general and vocational education.

Notwithstanding that the schools Turner advocated evolved into institutions of higher education rather than schools of secondary grade, as many of their early advocates thought they would be, they have demonstrated the practicability of a close organic relationship of vocational and general education. This demonstration undoubtedly exerted great influence upon the later development of vocational education in the secondary school. This relationship was beyond the powers of most schoolmen of the nineteenth century to visualize. Their difficulty was partly due to the persistence of the disciplinary theory of education, and partly to the characteristic class thinking of educated persons of the period. To visualize a close relationship in the schools between vocational and cultural education was also made difficult by the fact that relatively few young persons attended high school before the turn of the century, and they were for the most part only those who expected to enter the "professional class"; whereas the "industrial class" rarely remained in school beyond the elementary level. This fact, perhaps, accounts for the persistent efforts after about 1875 to meet the need for vocational education of this "class" by making the "general education of the common schools more practical," as it was expressed. Just how this could be done was never made very clear and there is little or no evidence to indicate that anything was done about it.

[1] Jonathan Baldwin Turner. *A Plan for an Industrial University for the State of Illinois.* Manuscript, University of Illinois Library, p. 371.

In the midst of the discussions concerning the educational needs of those who were not destined for the "learned professions," the Manual-Training Movement was launched. This movement was in essence an attempt to meet the vocational-education needs of the ninety-five percent by means of a basic or general vocational training "common to many vocations," hence, entirely appropriate for the "common" schools. This movement had a stormy career for many years, and even though its advocates, after the first few years of its history, ceased entirely to consider it vocational education, but rather as an important phase of general education in an industrial society, its enemies for many years continued to oppose it on the grounds that it was vocational education and, therefore, inappropriate in the *common* schools; and further that it was not conducive to "culture," which could come only from books dealing with the traditional "disciplines." Interestingly enough, this movement, after about 1906, came into conflict with the well organized Vocational-Education Movement, which became active during the first decade of the new century. Advocates of specific vocational education after 1906 fought manual training as "pseudo-vocational education," and they advocated abolishing it from the high schools to make way for what they called "real vocational education." This attack on manual training came, however, after it had won its fight with the traditionalists and it was too firmly established as a part of the program of general education to be ousted or even weakened. In fact, it was strengthened by the controversy. During this period, the old manual training was greatly enriched in content by its leaders and teachers and changed its name to Industrial Arts, as a more appropriate title for the greatly enriched subject matter. Meanwhile, specific vocational education found its way into the public secondary schools on its merits without displacing any existing forms of school work.

Notwithstanding that with federal aid specific vocational education is now firmly established in the secondary schools, the old problem of the relationship between vocational and general education is still a matter of concern to many educators. A few are still seeking some kind of basic or general vocational education which prepares one to engage, with a little special training after employment, in any vocation. Those who have gained their knowledge of vocational education from first-hand experience insist there is not, nor can there be, any such thing as general vocational education, that the instant it ceases to be specific it ceases to be genuinely vocational. Other general educators insist on some standardized, sequential formula for the relationship between general and vocational education, such as "vocational education should not begin until after high school graduation"; or, "vocational education should begin at the tenth grade"; or, "vocational education should be given after the ninth grade along with general education." When challenged to approve some such fixed statement of relationships, the vocational educator can only reply: "vocational education is most effective when given to the person who knows exactly what he wishes to do and is ready to begin specific preparation for it. This point in one's career is an individual matter and no standardized formula is practical." The general educator finds it extremely difficult to conceive a program of education sufficiently flexible to provide any such variety of relationships. Yet, by means of special provision in the full-time school for such flexibility, and by an extensive program of part-time and evening-school offerings, the vocational-education needs of the community can effectively be met.

Today the American educator is thinking in democratic terms to a far greater degree than did any previous generation of educators. To him, democracy means, increasingly, providing equality of opportunity to all the people of the community, both young and old, to grow and achieve to the extent of their powers. It means to grow physically, intellectually, morally, spiritually, aesthetically, and vocationally, and to achieve in all these areas as far as one desires and is able to achieve. It means not identical opportunities, but *equal*

opportunities. It does not mean attempts at equal growth and achievement, but only equal *opportunities* to grow and achieve. This means a most varied and flexible educational program. It requires thinking in much broader terms than earlier educators were able to use in their thinking, and it involves no fixed relationship between the two major aspects of everyone's education. Qualitatively, quantitatively, and sequentially, the relationship between vocational and general education will have to vary with individual needs. A close relationship between the school and the vocations, on the one hand, and, on the other, between the school and the several cultural agencies of the community will make such flexibility of relationships possible; and all community life will gain from such cooperative arrangements.

Alexander Stoddard well expressed the attitude of the majority of modern educators concerning the relation of general and vocational education as essential phases of everyone's education when he said: "There is not one kind of education that prepares a person *to make a living* and another kind that prepares *for living*. That is, there is not an education that fits one exclusively for the market-place and another that fits one for the life of the gentleman. The specifics involved may differ somewhat but the distinctions are rapidly disappearing between the practical every-day affairs of the commercial establishment, the industrial plant, the banking house, where men earn their livings, and art, music, drama, and other avenues through which men pursue happiness and the so-called inner satisfactions of life." In the same paper, he said: "Vocational education and what might be called general or academic education do not differ, or should not be regarded as differing, in the respect in which they are usually regarded as being different. The former is not 'training of the hands' and the latter 'training of the brain.' The former is not for those only of low ability, capable only of learning how to work with their hands. Everyone ought to be educated vocationally, according to his ability and his occupational desires, and everyone ought to be educated for citizenship, for effective living as an individual, and for successful participation in the society of which he is a part. In other words, all Americans should be prepared adequately for productive service, that is, for employment at useful occupations, and all Americans should be prepared so as to enable them to live richly and effectively in accordance with our cultural heritage. Every American should know how to make a living at a useful occupation and also be able to pursue happiness with some assurance of a reasonable expectation of success." [2]

Educational thought has made notable progress with reference to the relationship between general and vocational education since the first efforts to provide school vocational education of less than professional level. It has moved by slow steps from an aristocratic, class-conscious concept to an enlightened, democratic way of thinking. The task now confronting American education is to make the school with its varied activities and the total life of the community with all its potential ability to contribute to the education of youth, more effective in bringing about a genuinely democratic program of education. The problem of the modern educator is to develop an educational system which expresses in its practices the democratic philosophy he so often expresses in words. This problem will be solved when educators see clearly that there can be no question of vocational *versus* general education. These two aspects of the education of every individual constitute the two sides of a coin. When either is lacking, the coin is worthless as a coin. The only problem involved is how to make both as effective as possible, and its solution requires the mutual understanding and cooperative efforts of both the general educator and the vocational educator.

[2] Alexander J. Stoddard. "The Vocational Emphasis in Education," *1945 Convention Book*. The Illinois Vocational Association, 1945, p. 6-9.

*General Culture in French Education**

BY MARCEL DURRY

WHAT CAN be said about the idea of "general education" in French teaching at the present time? As a matter of fact, the expression "general education" is not a part of our pedagogic terminology, for a reason which I shall indicate. Education in France, fixed in its great lines by Parliamentary vote, has reacted in accordance with the thrusts and counter-thrusts of politics. After the war of 1914-1918, an attempt was made to return to the past through the proposals of Léon Bérard, which, however, failed. The events of 1940 had a comparable result. At that time there was talk of "general education." But let our readers not be deceived: it is an expression which has a very bad press among us and is quite out of date. The Vichy government wanted to bring education in line with its reactionary politics in all areas. Hence, along with the various courses of study, classes were organized in "general education," designed to preach submission to the slogans then in fashion. Under Abel Bonnard, enthusiastic admirer of Hitler, "general education (or instruction)" became a preparation for Nazism. The stupid and criminal enterprise had the outcome with which we are familiar, and the expression "general education," in university circles, has borne since then the indelible stigma of Vichy and all that that word evokes for those who from 1940 gave their allegiance to the Resistance led by General de Gaulle. That is why, in the title of this brief article, I speak of culture, old and beautiful word which evokes centuries of civilization.

* Translated by Professor Alexander Aspel, State University of Iowa.

What is culture? Everyone knows that a brilliant man has defined it as "what one still knows when he has forgotten everything." Indeed, one of our good *bacheliers* (A.B.'s) or *licenciés* (M.A.'s) of the past might have forgotten the names of the nine Muses, but he would understand the paintings of mythological subjects which he admired at the Louvre or in the public buildings; he might have forgotten the list of the Antonine emperors, but he knew what the *Pax Romana* represented; he might have forgotten the date of *Pantagruel*, but something of Renaissance man was in him. Above all, the training of his mind was such that he not only possessed a well ordered body of knowledge, but was also able to face new problems of all kinds which might confront him in the place or occupation to which destiny assigned him. And this culture could often be found in people who did not have a university degree, but who had traveled through books and through the world. It was one of the delights of living to encounter, before a wood fire in a country house or in a café on Montparnasse, the substantial and the witty conversation of one of these cultivated men.

II

The acquisition of a culture of this kind was manifestly the object at which all our traditional education aimed — let us say, to go back no farther, since the religious orders had organized it in the seventeenth century — an education founded on the knowledge of Greek and, especially, of the Latin of Cicero. The Revolution and its great

Declarations had, indeed, thought of technical education and of schools that produced scientists and engineers. But antiquity continued to haunt men's minds and, besides, the Napoleonic régime and the various monarchies which followed it soon restored the classics to the position of honor. It was less a matter of learning than of shaping the mind and fortifying it with tested formulas. Not all in this was bad — far from it; and originality and genius did not suffer thereby: this was the education received, successively, by a Racine, a Voltaire, a Hugo, a Valéry.

What the Revolution had not been able really to achieve — for the blaze was too brief — the brilliant progress of the sciences in the nineteenth century was to bring about. The reforms made at the end of that century all had as their object the transformation of an education in which rhetoric was queen into a more specific education wholly impregnated by scientific methods. First there was the great reform of the universities, accomplished by Liard, in which the dominant idea was unquestionably the effort to bring instruction in all its forms as close as possible to tangible realities. Formerly, for example, a student rather passively enjoyed the courses of professors of literature who descanted pleasantly on the comparative merits of Plautus and Terence. Henceforth, a Lanson studied Molière or Boileau, arming himself with dictionaries, bibliographies, and, above all, contemporary documents. He thus disposed of the verbose confusions of his predecessors and gave a new youthfulness and freshness to our masterpieces, much as a cleaner does to a painting. The Reform of 1902 followed the same direction in our secondary education. Parallel to the classical programs there were set up scientific programs and modern programs (that is, without Latin or Greek). The old course in rhetoric lost its name and was called simply the "first." Fifty years have passed; the new education has succeeded so well that no one dreams of going back to the old plan. It is only a question of completing and perfecting the magnificent enterprise that marked the end of the nineteeth century.

Since the Liberation, also, the advance has been resumed. A commission at Alger, of which I drafted the report, has already laid the groundwork of a reform of instruction. At Paris the work was continued with equal promptness — in exactly the same spirit — by a commission headed by the famous scholar, Paul Langevin, to which I also have the honor of belonging. The Langevin commission is preparing a large program which will be published within a month at the latest. This plan will mark still another step in the direction of specialization. We need fewer lawyers and more engineers. Technical education will receive the honor and the development that it deserves. But, someone will say, you are getting away from your subject. But, in fact, I am getting *to* it. For when one has seen the direction in which we are going he will understand better the really agonizing question that faces us: in this movement toward specialization and technology, how can culture be saved?

III

The reformers, to be sure, have been concerned about it. And for the present moment I can furnish clear proof of that.

A part of the reform has already been accomplished in what are called the new primary grades (*sixièmes nouvelles*), which are the beginning of a secondary cycle built on a new plan. In the instruction in these new primary grades (children of about eleven years) there are two parts: a fundamental education common to all children, and, besides, elective courses that range from Latin to music and the locksmith's trade. Latin is now only an elective, but the basic common education, if it is well conducted, should be an education in general culture.

Another specific example: the baccalaureate, having, so to speak, worn out, no longer appears a sufficient guarantee qualifying young people to undertake university studies with profit. Hence, between secondary studies and the university, will be set up a new cycle of two years of pre-university instruction. On its side, the Faculty of Letters of the University of Paris has established a pro-

gram for this instruction. There will be very general lectures which, on the subject of Ancient Rome, for example, would include: national character and the assimilation of the Greek spirit in Latin literature, education and the cultivated public under the empire, the juristic achievement of Rome, the advent of Christianity and the acquisition of culture by the barbarians, etc. . . . It will be seen at once to how great a degree these broad topics — and they are typical of all areas of learning — are concerned with culture. They show clearly that the French university, if anything, is even less doubtful than ever before about the primary importance of cultural studies.

May I make a personal suggestion? It seems to me that the regulation best adapted to encourage the acquisition of a general education and culture would be a regulation designed to combat the scattering and atomization of instruction. For children complying with the law of compulsory schooling (in the future from age six to eighteen), it will be necessary to have first a single teacher (as in our elementary schools) and afterward at all events what we call the principal teacher (*professeur principal*). The latter will teach in one term, for example, French, Latin, Greek, even history, leaving to specialists only the sciences and modern languages. The principal teacher — I cannot avoid recalling the memory of my father, who was an incomparable example in the lycée Henri IV in Paris — gave our secondary education the distinction that it enjoys everywhere. For he maintained a necessary equilibrium among the subjects, and exerted a continuous influence upon the mental and spiritual training of the young people, whom he had the time to know well — an influence that lasted through whole lives. In university instruction the thing is manifestly more difficult to organize, since the teachers there are necessarily highly specialized. For French literature, it is natural that there should be as many chairs as there are great periods. Nevertheless, even there could we not envisage, at the summit of all the highly specialized teaching, that of an unquestioned master capable of giving order to the whole? I am thinking — to speak only of the dead — of what could have been achieved here by the masterly quality of a profound essayist like Charles du Bos, or a Bernard Groethuysen, come from a Berlin chair to our corridors in the N. R. F. As these two examples show, it would not be a bad idea to look for these masters, sometimes, outside the university! At any rate, I am convinced that this kind of teaching would be an efficacious safeguard for culture.

IV

The world over, those concerned with the training of youth are not losing sight of this crucial problem: specialization or culture. It is in France as elsewhere. Since we have an old civilization behind us, since we feel that our country has let herself be outdistanced in production — although in the course of the nineteenth and twentieth centuries a great many discoveries, of immense repercussion, originated in French brains — (for these reasons) we are at the moment inclined to favor technology. But we know, too, that our situation in respect to population and economics scarcely permits us to compete with peoples that are, on the whole, richer. Hence we remember that for long centuries France has been a luminous original centre of culture, that even recently she has given the world her impressionist painters, her symbolist poets, her modern musicians; and we think that it is through cultural achievements that we can still render service to humanity. Culture, then, is what we place ahead of all the rest. Technology is quite capable of making robots out of artisans, robots good for slavery. But culture will make men intellectually critical, unceasingly awake, spiritually unceasingly alert. And thereby these men will know how — the essential thing — to insist on remaining free, free to create beauty, to respect justice, and to enable us to find once more the road to happiness.